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ARTICLE I. *On the Physical action of Capillary Systems.—Identification of the force producing motion with the chemical force.* By JOHN W. DRAPER, M. D., Professor of Chemistry and Physiology in Hampden Sidney College, Va.

1. It has been alleged, as a bar to all physiological investigation, that the phenomena of life are of so peculiar a nature, that we must necessarily forever remain ignorant of their causes; that, unlike physical phenomena, which are of a simpler caste, and more within the reach of human understanding, there is something in these inherently mysterious and incomprehensible. This unphilosophical impression exists not only in the minds of the vulgar, but has extended itself to men well trained to scientific research: it is to be found in the writings of the most eminent physicians, and often affords a plausible screen for professional ignorance. Of all the sciences, medicine is the last to profit by the analytic method—a method which has raised other departments of knowledge to their present rank. Its cultivators pursue the same course of synthesis which was pursued in the days of the Greeks—they reason from hypothesis to fact, instead of from fact to hypothesis.

2. It may, however, be boldly averred, that the science of life is not more occult than any other of the sciences. We may, by proper investigation, carry it as far; and in the pursuit we shall only stop short at the very same point which has proved impassable in them.

Of final causes we know nothing; the immediate agent of life is not more obscure than any of the remote physical agents. If we cannot assign any reason why a seed germinates, can we tell why a stone falls to the earth?—is the one phenomenon any more comprehensible than the other? If we cannot tell how it is that one parent should produce a countless offspring, each of which has the power of reproducing beings like itself, neither can we tell how a spark produces an extensive conflagration. It avails us little to say that the principle of life, like the principle of heat, possesses a radiant character, or has a power of self-production. We are equally ignorant how the wide spreading flame results from a spark, and how countless myriads of seeds have originated from one primordial germ.

3. Some parts of the science of physiology are doubtless within the reach of scientific investigation. Most of the functions of organic life are of this character. Absorption, secretion, circulation, and respiration are carried on through the medium of tubular arrangements of different kinds, endued with specific powers. We are not well informed of the nature of these actions, or of the force giving rise to them. The changes taking place in organic structures partake partly of a mechanical, partly of a chemical aspect, bearing some similarity to other physical changes effected by known agents, yet not identical with them. Some have supposed that the attraction of affinity, or the force of capillarity, was the power in question, operating in an unusual manner, under unusual circumstances; but the majority of medical writers have cut the knot, instead of untying it, and assert that it is a peculiar force, recognised under the title of vital force, life, or nature.

4. It is, however, most unphilosophical to resort to these vain explanations, which after all afford us no information, substituting only obscure terms as the causes of events not more obscure. Had we approached the problem of pore-action in the same spirit that has led to the developement of the causes of magnetic action, a similar and equally striking advance would have been made.

5. Capillary attraction, considered simply as a mechanical force, is not competent to produce those changes which the pores and narrow cylinders of organic structures give rise to. The products of glandular action are chiefly compounds of a definite number of equivalents, bearing a strong resemblance to the products of ordinary chemical action; but still the operation of capillarity as a force producing motion is undeniable. Can it also produce chemical changes? Is it simply a manifestation of the electrc chemical relations of matter?

6. Previous to entering at large into an examination of the laws of pore-action, this query will demand an answer. We shall find from what follows, that capillary attraction is a force nearly allied to, if not identical with, chemical affinity. Now, the investigation of the problem of pore-action naturally divides itself into two parts. 1st. The mechanical conditions of equilibrium and movement of fluids residing in tubes of narrow diameter, but of any length. 2nd. The chemical changes which fluids so situated undergo.

7. The identification, therefore, of the force producing the mechanical effect, with that producing the chemical changes, is a most important point, and to this I shall direct my attention in the present communication.

8. There are two phenomena of capillary attraction, the conditions and circumstances of which are well known—the rise and depression of fluids in tubes of a certain diameter, and the adhesion of flat solid plates to the surface of fluids. From the former of these this kind of attraction has derived its name; the latter furnishes us with the means of making researches, devoid of ambiguity, in reference to the physical cause of capillarity.

9. If a circular disk of glass, or any other solid substance, *Fig.* 1, *a b*, be placed on the surface of any fluid, *e f*, by means of a handle *c*, it will adhere thereto with a certain force, which may be measured by means of a balance, but which is sufficiently evident when attempts are made to lift the disk with the hand. This force is known under the name of capillary attraction. An investigation of its physical cause, and the laws respecting it, involve the fundamental propositions of pore-action and passage through tissues.

Fig. 1.

10. The phenomena of capillarity are brought about by electricity, operating under peculiar circumstances. They are due to a disturbance of the electric equilibrium, and hence are intimately allied to all kinds of chemical and vital changes.

11. Let *a b*, *Fig.* 2, be a glass plane, reposing on the surface of mercury, *c d*, contained in an insulated vessel, and capable of being elevated by an insulating handle *e;* let the mercury be connected with an electrometer *f*, by means of a wire. Now, so long as the glass plane and the mercury are in contact, the electrometer evinces no disturbance; but

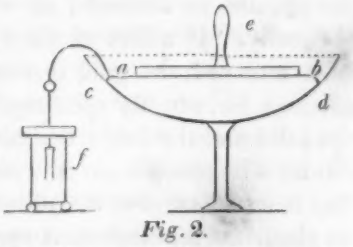


Fig. 2.

as soon as the plane *a b* is raised by its insulating handle, electricity is instantly developed, and the gold leaves diverge. As there was no electrical excitement whilst the plane and the metal were in contact, it is a legitimate inference that the electricity now developed was the cause of their strong attraction or adhesion; and this is corroborated on taking the glass plane to another electroscope, when it will be found that it is electrified positively and the mercury negatively; and that consequently when they are brought into the vicinity of each other, a powerful attraction *must* result.

12. A cause of attraction being thus developed, it would be very unphilosophical to seek for other agencies where one so competent to produce all the effects is observed to exist. For in every case where a solid plane reposes on the surface of a fluid not wetting it, a large amount of electricity of very high tension is produced, the electricity of the surface of the plane being always opposite to that of the liquid. They *must therefore attract each other.* I express here only a fact, not involving any disputed hypothesis whatever, as to whether that developement of electricity originates in the mere contact of the bodies, their chemical action, or any other cause; but it is a fact, that when any solid reposes upon any fluid, provided its surface does not become wetted, a developement of electricity uniformly takes place, and a powerful degree of attraction must necessarily ensue.

13. The postulate here introduced requires explanation, for electric excitement is not observed if the solid surface is wetted. Solids bear a peculiar relation to liquids, being wetted or not wetted by them. Most solids, for instance, are wetted by water, and but few by mercury; the surface of the glass is readily moistened by alcohol or oil, but not by melted sulphur or mercury: hence the latter, from its not adhering to the skin, was called by the older chemists *aqua non madifaciens manus.* The circumstance, that no electrical excitement is observed when a solid surface is wet, might appear at first sight contradictory to the hypothesis here assumed. A more accurate examination, however, places it in a very different light, and shows that the phenomena observed are exactly such as they ought to be hypothetically. If a disk of glass is placed on the surface of water and then removed, the gold leaves of the annexed electroscope are not affected, for, strictly speaking, no rupture has taken place between the solid and the fluid; the thin film of the latter in contact with the former still remains so: it is only the cohesion of the watery particles that is overcome, not the adhesion of the solid to the fluid, and hence no electrical developement appears.

14. Geometers have shewn the exact relation a solid must bear to

a fluid to be wetted by it. It results from the mathematical investigations of CLAIRAULT, that if the attraction of the particles of the solid for those of the fluid is more than half the attraction of these last for each other, the solid will be wetted; but if it be less than half, the solid will not be wetted. An experimental proof of this may be obtained by counterpoising a disk of glass *a*, *a*, *Fig.* 3, at the end of one of the arms of a balance, by weights in the scale *b*, and then lowering it on the surface of some mercury in a cup *c*; it will be found that a certain weight must be added in the scale *b* to detach it. Next in place of the disk of glass, substitute a plate of *amalgamated* copper, of the same size and weight, and ascertain the force required to detach it; this will uniformly be found more than double the former weight. The first weight expressed the attractive force existing between a surface of glass and mercury; the second the cohesion of a cylinder of mercury of the same diameter, and the numbers obtained experimentally corroborate the investigations of Clairault.

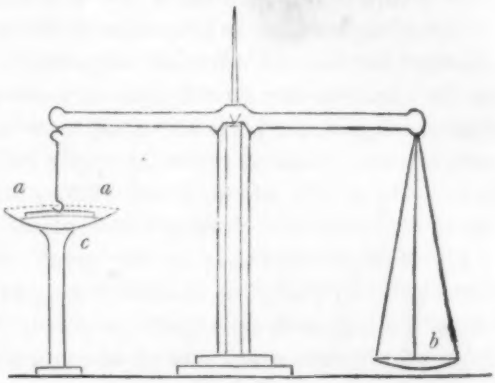


Fig. 3.

15. I dwell on this part of the phenomenon because it is of no small importance; the same conditions that determine whether or not the surface of a solid is to be wetted, determine also whether a liquid shall pass through a pore, and move forward in a capillary vessel.

16. The difficulty arising from the non-developement of electricity, where the solid surface is wetted, being thus dismissed, we next enquire whether the hypothesis here assumed will give numerical results analogous to those procured by experiment. In other words, if two solids which adhere to a certain fluid, with forces differing in amount, develope upon rupture, quantities of electricity in the same ratio. As a general result, the balance and electrometer prove that this is the case. Beeswax, which adheres to mercury with much less force than gum lac, developes likewise much less electricity. Gum lac, which adheres less strongly than glass, likewise developes much less electricity; but when we attempt to run a comparison in this manner along a series of substances, we find there are many disturbing causes, which in most cases incapacitate us entirely from making comparable results.

Much depends on the relative conducting power of the surface employed. A plate of iron may be separated from a surface of mercury, which does not wet it, with a very small disturbance of electric equilibrium, arising from the high conducting power of the metallic plate, which enables a transfer of any free electricity to take place if the plate should tilt on one side, or any thing affect its horizontality during the act of separation. In proportion as the conducting power increases, although the force of adhesion may remain the same, the total effect on the electrometer should diminish; and this is agreeable to experience. Again, the presence of moisture on any part of the touching surfaces will vitiate the results; partly owing to its high conducting power, but chiefly to the circumstance that it hinders the surfaces under trial from ever coming into contact.

17. The circumstance of this great variability in the amount of developed electricity, is in itself strong evidence of relationship between the supposed cause and the effect. Gay Lussac found that it required a weight sometimes of 158 and sometimes of 296 grammes, to detach a certain disk of glass from mercury, depending on causes which were not very apparent. An effect thus differing in amount indicates a cause of like variability, or subject to many disturbances.

18. I assume, therefore, that the agent bringing about capillary phenomena is identical with that producing chemical action, and that both may be referred to electricity. The force of cohesion bears the same relation to both, acting on both as a disturbing power. Nay, we may even take a much more extensive view of the matter; and from the ratio these forces bear to each other, predicate the effect of their combined action, which may be classed under three distinct heads.

1stly. If the force of attraction of the particles of a solid, for the particles of a fluid, be not equal to half the cohesive force of the latter, for each other, the fluid will refuse to pass through a pore of that solid substance; and in capillary vessels consisting of it, will be depressed below its hydrostatic level.

2ndly. If the force of electric attraction of the particles of a solid, for the particles of a fluid, exceeds half the cohesive force of the latter for each other, but is not equal to the whole force, the fluid will pass through a pore formed of that solid substance, and in a capillary tube of it, will rise above its hydrostatic level.

3dly. If the force of electric attraction of the particles of a solid for the particles of a fluid, exceed the whole cohesion of the latter, *chemical union* ensues.

19. In thus assimilating the force producing pressure on planes,

and motion in narrow pipes, with the force producing chemical changes in the constitution of bodies, a great advantage is gained in simplifying physiological investigations in respect of the action of capillary systems. It is an electrical force that determines all kinds of constitutional changes developed in bodies by the chemistry of organic life, and it is a manifestation of the very same force that carries some fluids along the almost invisible vessels of living structures, and denies to others a passage. All the phenomena of inorganic chemistry are the result of the balancings of the force of cohesion on the one hand, and electrical attraction on the other. If Berthollet was wrong in supposing that chemical affinity as an acting force had no existence, other chemists have equally erred in supposing that all kinds of changes, without any limitation, were due to it. Whether we investigate the phenomenon of chemistry or of capillarity, we have the same forces to deal with, acting as antagonists to each other; and hence the whole effects imputed to capillary attraction may be regarded as belonging to that extensive class which the science of chemistry considers.

20. There is a variety of facts recorded by writers on capillary attraction, which an application of these principles readily explains, though hitherto they have been regarded by philosophers as remarkable anomalies. Such is the observation of Huygens, that it was possible to cause mercury to stand in a barometer seventy inches high; or that of P. Abat, of a singular deviation in the hydrostatic level of the same fluid in different branches of a syphon.

21. The force of attraction which produces pressure, when plane solids repose on the surfaces of fluids, under other circumstances produces motions of various kinds. If a tube of small diameter be plunged into a liquid, the level within the tube does not correspond with that outside, except under very peculiar and very unusual circumstances; but sometimes the liquid rises far above its level, and sometimes it is depressed, the amount of disturbance taking place in both cases being in the inverse ratio of the diameter of the tubes. All fluids which can wet the surface of a narrow pipe rise in it; those which cannot wet it are depressed. Geometers have shown, that if the attractive force exerted by the pipe upon the liquid be more than half the cohesion of the particles of the latter for each other, there will be a rise; if it is equal, the level of the fluid inside and outside of the pipe will be the same; and if it be less than half, there will be a corresponding depression. Now, extensive observation proves that these three cases are always accompanied with certain peculiarities, as respects the surface of the fluid in the tube, as is represented in

Fig. 4. In every case where the fluid rises, it is observed to be terminated with a surface concave upwards, as appears at *a a;* if the level is the same as it should be hydrostatically, then the terminating surface is a plane, as at *b b;* and if there be a depression, then the surface is convex upwards, as at *c c*. Whenever, therefore, a tube of narrow diameter is placed in a fluid, if the action of the particles of the tube on the particles of the fluid be less or more than the attraction of these last for each other, motion ensues, and the fluid falls or rises to a height determined by the diameter of the tube.

Fig. 4.

22. If the tube be perfectly cylindrical, as *Fig.* 5, *a a*, and there be conveyed into it a short column of fluid *b b*, it will be found that this fluid rests in any position, provided the tube be horizontal. But if the tube be conical instead of cylindrical, as in *c c*, and a little column of fluid, *b b*, be introduced into it, then a motion of the whole drop ensues, the progress being made towards the narrow extremity. In this way capillary attraction is competent to produce motions of various kinds.

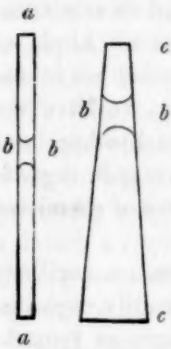


Fig. 5.

23. All these disturbances of ordinary level, and these motions, are found to result from the action of the surface of the liquid. From a consideration of these disturbances, Laplace deduced his theory of capillary action; a theory which, with a little modification, is now generally adopted. The thickness or thinness of the tube has no effect whatever on the phenomenon; nor does the substance of which it is composed exert any influence. Every thing is made to depend on the figure of the bounding surface, which necessarily acts more and more powerfully as the diameter of the vessel becomes narrower.

24. Capillary attraction does not take place only between solids and fluids; it is exhibited when solids alone are made use of. In virtue of this power, two pieces of lead cohere with great energy to each other, as also is the case with two planes of polished stone, or plates of glass. When glass is used, electricity of very high tension is readily detected, one of the pieces being positive and the other negative, it would, I suppose, hardly be denied, that the force operating in the case of glass is also the force that operates in the case of stones. Is it not, then, a legitimate supposition, that the adhesion of two pieces of lead is brought about by the same agent, whose presence is masked by the high conducting power of the metal?

25. Between solids and gases capillary action likewise takes place. On the surface of all kinds of solids atmospheric air remains in a state of condensation, as is made evident when such bodies are placed beneath water under an exhausted receiver; the air appearing in copious bubbles, studding the surface of the metal.

26. Now, having a power, the operation of which over inorganic masses is so extensive, it is for us to enquire how far the phenomena of organic systems depend upon its working. Those numerous pores and pipes, and capillary vessels, which abound in all kinds of living structures, but of whose action we are so ignorant, point out to us capillary attraction as one of the great forces in play, determining all kinds of motions and physical changes. To identify the force producing motion of a mechanical character, with that effecting physical change, gives a unity to the action of powers which have hitherto been multiplied without avail, and stamps simplicity and symmetry on actions that are very diverse.

27. Hitherto we have treated of capillary attraction as a force producing certain simple results, as the adhesion of pieces of metal, or of plane solids to the surface of fluids, or the rise or fall of fluids in tubes. All these consist of binary arrangements; and it is probable, as will hereafter be shown, that certain simple processes in the organic kingdom are examples of similar simple forms of action. But, arrangements of a more complex character may be imagined, and are known to exist, where, instead of there being two, three or more elements are concerned. Ternary arrangements lead to the consideration of the doctrine of endosmosis, by which we understand the passage of two fluids or gaseous bodies through a narrow channel, in opposite directions, at the same time.

28. The law of horizontality of fluids meets with a remarkable exception when the containing vessel is a capillary pipe, as has been already stated; for a change of level ensues, according as the fluid will or will not wet the walls of the tube. Laplace has shown that the immediate cause of this rise or fall is the peculiar figure of the surface of the liquid in the pipe. The theory embracing these facts will be found in the supplement to the tenth book of the *Mecanique Celeste*. M. Poisson, from a consideration of the heterogenity of the liquids in ternary arrangements, has endeavoured to refer all the phenomena of endosmosis and transudation through tissues to common capillary attraction, but with a want of success not usual to the labours of that excellent mathematician; not that we are to deny the result to which he has arrived, for that is only the expression of a fact, but the steps of his investigation are unquestionably faulty, for the

same reasoning will apply to tubes of all diameters, and it does not satisfy the condition that both liquids shall pass in opposite directions at the same time.

29. It is not necessary to proceed here to the discussion of the remoter data of the mechanical part of this question, nor to refer to the elementary conditions of pressure upon a surface, nor to the action of solid bodies alone; though in each of these cases the investigation might readily be carried out to the conditions of motion and repose. Let us proceed to investigate the case where two fluids are adjacent to each other, but do not communicate, except through a pore. This case involves the theory of tissue action. Taking for granted the theory of Laplace, of the equilibrium of liquids in capillary tubes, we may assert,

1stly. That if two fluids *A*, and *B*, whose attraction for each other is greater than the cohesion of the homogeneous particles of either, communicate with each other through a pore, the walls of which attract the one more than the other, motion through that pore will ensue, both liquids passing at the same time in opposite directions.

2ndly. If we take particles receding from the axis of the pore, the forces soliciting any one of them to move in a direction with the axis, gradually decrease, whilst the rectangular forces increase in intensity.

3dly. In the axis of a pore any two molecules, *a* and *b*, situated in the fluids *A* and *B* respectively, are acted upon by two systems of forces—one tending to produce motion parallel with the axis, and the other at right angles to it. The forces which tend to produce motion parallel with the axis are not compensated, but all the rectangular forces compensate each other.

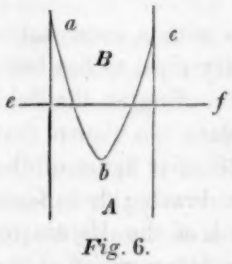


Fig. 6.

4thly. Let *a b c*, *Fig.* 6, be a section of the figure of the surfaces of the fluids *A* and *B* on contact, and through any part of it, *e f*, let an imaginary plane pass. Now, the forces which act on the side *A* of the plane tending to produce motion in *B*, are much greater than the forces on the other side tending to restrain it. Moreover, the action of these forces is at a maximum at the point *b*. The figure of contact, therefore, becomes changed, the point *b* advancing along the axis, and making the opposing particles retire in the directions of least pressure; the fluid *B* continuing to pass down the axis of the pore; and the very same reasoning shows that at the same time *A* will pass in the opposite direction. If, therefore, two fluids are on opposite sides of a barrier, and only communicate with each other by a pore through it,

motion in that pore will ensue, both liquids passing in contrary directions, simultaneously and co-axially.

5thly. And the same reasoning which applies in the case of a pore, will also apply to a cribriform plate or tissue, whose apertures are all capillary tubes.

30. In this view of the subject, as is evident, I have imputed the phenomena of tissue action to the force of capillary attraction, taking into account the heterogeneity of the system of fluids. I have not spoken of the relative difference of cohesive force, which, as might be shown, aids in producing the very same results. From these considerations we can deduce the condition of equilibrium, for it is evident that as soon as the chemical composition of the fluid on each side of the pore becomes identical, the forces soliciting motion each way, antagonize each other completely. It was the heterogeneity of the fluids that gave rise to the first movement, and kept it up; but so soon as the media on each side became homogeneous, motion ought to cease; and that this is the case, is abundantly proved by experiment.

31. With respect to the *diameter* of pores, there are some important conditions. Let *a b c*, *Fig. 7*, be a pore, whose diameter exceeds double the radius of the sphere of sensible attraction of its own particles; or, in other words, whose axis is beyond the influence of the attractive force of its own walls. If a cylindrical column of fluid, *e f g*, of a certain diameter, moves through it, the circumferential parts of that cylinder will be brought under the direct influence of the walls of the pore, but its axial portions only indirectly through the intermedium of the cohesion of the fluid itself. We may say, therefore, that the axial portions of such a cylinder are unaffected by the pore itself; but if the diameter of the pore be supposed continually to diminish by degrees, all parts of the cylinder will at last be brought within the influence of the walls of the pore. Another mode of viewing this condition of things may place it in a still clearer light. When a liquid rises in a capillary tube of certain diameter, only those portions are under the direct influence of the attractive force of the tube which are nearest to it, the central columns being entirely unaffected; as, when water jets out through a narrow pipe, it is only those portions that are directly in contact with the sides of the pipe that are subject to its resisting influences, any disturbance which the central particles feel arising only indirectly from their cohesion. A pore in a piece of charcoal may suffer a column of water to go through it without in anywise affecting the central portions of that column, by reason of its size; but should the diameter

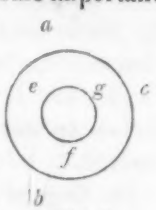


Fig. 7.

of the pore be made to decrease, it is obvious a limit might finally be reached, when every particle that passed should come under the direct influence of the physical force of the pore, and none pass by mere leakage or oozing. The importance of this element, viz: the variability of the diameter of the pore, is greatly to be insisted on. It has heretofore been pointed out in this Journal, and in the Journal of the Franklin Institute, but does not seem to have attracted that attention which it deserves. Chemists are still in the habit of co-ordinating the passage of liquids, through stucco plugs and pervious barriers, with that through tissues and liquids. Physiologists carry out the same error, in supposing that there is no essential difference in the motion of fluids in the capillaries and through the pores of tissues.

32. It is not alone in the vital functions that we meet with applications of the principles of capillary action; the mechanical functions furnish numerous instances. The organs of progression of some animals which delight to walk upon water, are provided with an apparatus of hair, calculated to repel that fluid; hence gnats and certain other insects have no difficulty in passing over the surface of water. By the same means the hydra suspends itself, without effort, in that element; for having exposed for a time the extremity of its foot to the air, so that it may become dry, it, by repulsion, forms a cup-shaped hollow around it, the head of the insect hanging down in the water beneath.

33. Organs of exhalation and absorption are unquestionably capillary systems. The stomata of plants, which botanists suppose to discharge these functions, are of this character; they furnish a well marked instance of the accommodation of apparatus to suit physical conditions. Plants growing beneath the surface of water have no stomata; but if, by any means, they reach the atmosphere and vegetate in it, these organs are produced for the purpose of discharging, under the new order of things, offices which were accomplished by other means. The spongioles of roots, acting as capillary systems, drive the fluids they absorb from the earth, through the tubular vessels of trees, with a force of several atmospheres, extending themselves at a due distance from the trunk, where they may meet with the water that falls from the leaves. In some orders of living things, which are not accommodated with distinct orifices for the reception of food, nutrition is accomplished by capillary systems. In this manner the *porifera* expose a wide surface to the seas, and draw in nutrient matter through their microscopic pores, discharging the surplus as excrementitious matter through their papillary orifices.

34. Like the lungs of the mammalia, the leaves of trees are respira-

tory organs, composed of capillary systems; their mechanical functions are not so complete, though their chemical functions may be identical. They demand no nervous cords to be spread upon them to give them motion and keep up their play; the breezes in which they tremble perform the office of carrying off the exhaled impurity, and the rays of the sun furnish them with their vital force, enabling them to effect the decomposition of carbonic acid, and provide a store of carbon for the purposes of the economy.

35. In identifying the mechanical with the chemical force of organic structures, we see another proof of that unity of design existing through the entire range of living things. Functions of all kinds are accomplished by arrangements of every sort in different classes, yet no one will deny that they all follow one original type. Digestion, as it takes place in the stomach of man, appears a highly complex phenomenon, depending, as some say, partly on the tissue action, partly on nervous and partly on other powers. But are not analogous changes wrought without all this complexity of apparatus in the hydated, which may be taken as the elementary type of the stomach; or in the tænia, which is a colony of stomachs? The polygastric infusorials, some of which have hundreds of these organs, and even the mammalia, do not digest more perfectly than the hydra, a carniverous polypus, which may be turned inside out without detriment. The laws of digestion, followed by the one, are followed too by the other. If the organ of the one respects the presence of living matter, and refuses to act on it, so does the other; yet the one is furnished with a highly complicated assemblage of muscular bands, of glandular apparatus, of blood-vessels, of nerves, and the other is not.

36. In the higher orders of life processes are carried on by multiplied apparatus, without, however, deviating from the principle of the original simple type. The gift of a new faculty, or the addition of a new organ, brings with it a corresponding change in the arrangement of the whole plan. An engineer, who wishes to adopt a machine to the execution of some new task, alters every part, no matter how remote it may be from the acting point, until every wheel and lever executes its work co-ordinately with all the others; the prime mover remains unchanged, though the general character of the machine may have undergone a renovation; and as all machines, no matter of how many parts they are composed, nor of how many wheels they consist, nor how intricate soever may be their resulting motions, may have their power reduced to and represented by a simple lever, so also organic functions, though often brought about by highly complex arrangements, find simple representatives in the lower orders of life.

A concentration, or a developement of any organ, is often demanded by change in a remote part of the fabric, when even the connexion may not be very evident. Animals, consisting simply of digesting cavities, require no vascular system for propelling or containing a nutritious fluid; they are not in need of separate tissues, devoted to its oxygenation, nor of an insulated respiration, nor do they demand distinct biliary organs; when the nutritious chyle is produced in the stomach of zoophytes, it finds its way into the intercellular spaces, and there circulates without vessels, undergoing through the external tegument the chemical changes. In many insect tribes, the bronchial tubes are spent upon the peritoneum, and respiration takes place directly upon the alimentary canal. With modification of functions, change of external figure is always involved; and as these progress together, systems of living things are constructed, referrible to one common original type. It is thus, in the echinodermata, we trace up successive steps, from the sea urchin to the asterias, and from that to the pentacrinite; a developement of the same parts of the structure continually taking effect, until the extremes bear no sort of resemblance to each other.

37. Had the production of living things been effected by the operation of second causes, we might look with LAMARCK, for some law of successive developement, which should contain the origin of each order and species. We might regard the rudimentary teeth of whales, or the subcutaneous feet of the ophidia, as abortive results of such a law. Considering the brain as a developement of the spinal axis, we might trace in the form of the cranial bones, a developement of a system of vertebræ, brought about as a consequence of the very same laws. We might run a parallel of analogies, between the crustaceous and vertebrated animals, and exogenous and endogenous plants; we might take the cephalopodous mollusks, as furnishing the first rudiments of an internal skeleton, and trace its increasing complexity to meet certain ends, until its perfect developement in the mammalia. In this latter class, we might dwell upon the uniform existence of seven cervical vertebræ, as giving evidence of a persistence in the plan of structure, in species so remote from each other, as the cameleopard, the whale and the mole. Parting from the dorsal vessel of insects, the first rudiments of an aorta, we might follow out the complications of the higher arterial systems. In all the varieties of respiration, whether aquatic, aërial, or mixed, we might see the reproduction of one original chemical design, and in every instance of a concentration of machinery or functions, we might find an impress of the action of external formative agents.

Hampden Sydney College, November 20th, 1837.

ART. II. *Case of complete division of the Pharynx, above the Larynx; loss of the Os Hyoides, and a portion of the Epiglottis cartilage, by Sloughing; recovery.* By ISAAC G. PORTER, M. D., of New London.

On the 13th June, 1837, C. H., a large, muscular man, a native of Pennsylvania, of German parentage, under the combined influence of despondency and momentary inebriation, attempted suicide by cutting his throat with a razor, with which he was shaving. Two incisions were made on a line with the os hyoides, and immediately above it; the first extending from a point within one-third of an inch of the left carotid artery, to a point on the other side of the throat, so near the right carotid, that it was seen pulsating in the angle of the wound. The second incision followed the same course, separating the deeper seated parts. A portion of the epiglottis cartilage was cut off, and the remainder, which was attached to the os hyoides, was, in progress of time, removed by sloughing The pharynx was divided, and the vertebræ of the neck almost laid bare. The man fainted from loss of blood, and being alone, lay for many minutes insensible, and without assistance. When medical aid arrived, the lips of the wound, which had ceased to bleed, were partially drawn together by the interrupted suture.

14*th.* Early this morning the writer first saw the patient; the injury had been inflicted the evening previous. The wound was then gaping, a single suture only remaining, the others being torn out by a violent cough, caused by bloody serum flowing into the trachea. The patient's countenance was pale and haggard in the extreme; he was pulseless at the wrist, and his extremities deadly cold. A slight pulsation, or rather fluttering, could be perceived at the elbow. Breathing through the wound, he was, of course, speechless; but he was perfectly conscious, and had signified by writing that he thought himself dying. Desperate as was the case, yet the man's penitence and strong desire of life, stimulated to action. A stomach tube was introduced, its extremity being guided into the lower portion of the pharynx, by acting through the wound, and through this a quantity of wine and toast-water was injected at intervals. There will be no doubt that the pharynx was completely divided, when it is stated that between its extremities, the head being thrown back, the stomach tube was visible for more than an inch. In five hours the pulse at the wrist became perceptible; and after reaction was established I drew together the extremities of the wound by means of sutures and adhesive

plasters; the latter of which, however, owing to the profuse discharge, proved of little service. The chin was also brought forward upon the sternum by means of bandages applied around the head and beneath the axilla. In the afternoon there was a severe convulsion, continuing ten minutes; the muscles of the body tonically contracted. In an unguarded moment, early in the morning, the stomach tube was withdrawn from the mouth, and it was subsequently introduced through the wound. In this manner he was fed through the day with gruel; and at night an injection of mutton broth with a teaspoonful of laudanum was administered by the rectum, and retained.

15*th*. Passed a restless night; much floccilatio and subsultus tendinum; another severe convulsion occurred, followed by tetanic symptoms. There is at present an inability to open the mouth; much stiffness about the angle of jaw, and teeth firmly clenched. Has complained from the first of excruciating distress in epigastrium, which continues. Large quantities of laudanum were administered by stomach-tube and rectum, which alleviated the violence of the symptoms. In the evening bowels ordered to be moved by a purgative injection.

16*th*. Commenced feeding him by means of a gum elastic syringe, having a moveable pewter pipe and a large elastic catheter, introduced into the stomach through the wound. The catheter and pipe were attached to each other by several coatings of leather, extending over one extremity of each. The former being introduced, the elastic bottle was filled with gruel or mutton broth, and after being screwed upon the pipe, was speedily emptied by pressing out its contents. To-day the patient, in despair, removed the bandages which confined the head; every suture tore out, and the wound gaped as wide as ever. My friend, Dr. E. North, who was so kind as occasionally to visit the case in its progress, now saw the patient with me for the first time, and advised perseverance. Two sutures were fixed in each extremity of the wound, and the central portions secured as well as possible by position, and the head by an appropriate bandage. Owing to the division of muscles and ligaments, the larynx fell considerably below its true position, so that it could not be brought into contact with the upper lip of the wound. Patient still fed by the catheter introduced into the stomach through the wound. A tenacious, muco-purulent matter is expectorated from the lungs in large quantities. From the first his mouth has been frequently moistened by means of a sponge; but he now takes drink into his mouth, a part of which enters the stomach; the larger part being voided through the wound. Entering the larynx, which it does in small quantities, it produces cough. A

similar effect results from the secretions of the wound; but it is a great relief thus to wash and cleanse its surface.

18*th.* Chills and high fever; tongue thickly coated with brown fur; pulse full and strong; pain in stomach severe; much dejected in mind. Ordered sulph. magnes. ℥i. This operated efficiently; and at night, forty drops of laudanum, the usual anodyne at the hour of sleep, was administered.

20*th.* Revived and cheerful. Ordered ol. ricini ℥i.

21*st.* Refuses nourishment oftener than once a day; complains of sense of fulness in the stomach, and that food makes him cough. Diet to be entirely vegetable.

23*d.* Has a violent pain in the lower portion of the right lung, with decided pleuritic symptoms; cough much increased, and very painful; expectoration tinged with blood; tongue black; circulation more hurried and full. A blister, with tart. antim. and squills, relieved the urgency of all the symptoms.

24*th.* Sutures continue to give way by ulceration. Granulations beginning to be profuse. To-day was fed, for the first time, by the mouth by means of a catheter and copper wire introduced into it, and curved within an inch of its extremity. By withdrawing the wire gradually, the catheter was kept curved in the mouth, at the same time strength was imparted, so that it passed readily into the stomach. So easily was it accomplished that the operation was soon entrusted to the patient and his attendant.

27*th.* Os hyoides, together with part of the epiglottis cartilage, came away by sloughing, and the former is now in my possession. Thus a freer passage is afforded into the lungs.

29*th.* Functions of bowels perfectly regular without medicine; sleeps well at night, no anodyne having been given for a week. A baker's rusk, soaked in tea, was taken, nearly the whole of which entered the stomach. He is fed chiefly with mutton broth.

July 1*st.* Nothing has yet been said of a singular appearance, in one respect, of the lower surface of the wound. The passage into the stomach is denoted by a chink or depression, situated between two hemispherical bodies, resembling in size and appearance the half of a small cherry. These were perfectly smooth, and at this date much more swollen and red, than earlier after the accident. They are the parietes of the pharynx covered with the everted mucous membrane.

The granulations at the top of the larynx were so profuse, at my visit in the morning, that I feared they might close the aperture into the lungs; but still did not anticipate immediate danger. On visiting him in the evening, I found him almost in the agonies of death. In-

halation becoming gradually more laboured as the granulations increased; for the deeper the inspiration, the greater the pressure of the atmosphere, causing a collapse of the parts at the top of the larynx. The patient was covered with drops of cold perspiration, and the eyes rolled up beneath the eyelid in insensibility. I immediately introduced into the larynx a pair of artery forceps, the blades of which were distended by a spring. Immediate relief followed. The forceps were kept in their position by manual assistance until the morning of the

2nd. When I had a curved tube of block tin (as an experiment) made, which perfectly overcame this tendency in the granulations to close the opening in the larynx. Besides, the patient finds it much easier to throw up the muco-purulent matter, which is secreted in the lungs, or flows thither, from the surface of the wound.

7th. To-day, taking a cigar in his mouth, he went out without permission, and walked one-fourth of a mile. Wound contracting and granulating kindly. Still he presents the singular phenomenon of a man walking about with his throat cut almost from ear to ear. Feeds himself readily, taking mush and milk, two-thirds of which enters the stomach.

No further notes were taken of the case in its progress. As the process of granulation advanced, an occasional suture was used until the wound completely healed, with the exception of three-fourths of an inch in the centre. After the walk, just alluded to, he had an attack of bronchial inflammation, the consequence of undue exposure, which threatened to become chronic. Expectoration was profuse; his appetite failed; and he was much emaciated. Under the use of opium and a regulated diet, he ultimately recovered. Owing to the facility with which he could swallow meat, without its escaping through the orifice in the pharynx, he had made a free use of it; but it invariably increased his cough. Perhaps he is indebted for his recovery to the meagre diet to which he was necessarily confined soon after the injury. At the end of two months from the accident, he had, in a great measure, recovered his strength, and with the exception, now to be named, was nearly restored. Besides the fistulous opening leading into the larynx, there was a small chink in the pharynx, between the free surface of the everted mucous membrane below, which has been described, and the granulating surface above. Small portions of saline and other fluids were pressed out in the act of swallowing, which soiled the clothes, and by entering the larynx produced a cough. The hemispherical body alluded to, as covered with a mucous membrane, was freely pencilled with nit.

argent., in the hope that granulations might sprout up and unite with those from above, and thus close the opening. Failing in this, the use of the actual cautery, as applied by Dieffenbach to the cure of intestinal fistulæ, occurred to my mind, and the whole surface was seared with a hot iron. But few granulations resulted, which, however, contributed to close the crevice, and this was now diminished to one-fourth of an inch in length. Four days since, at his request, the cautery was a second time applied. This will probably accomplish the object, although it must be left for others to decide the point. The patient is a clothier by trade, and finding no employment in that line of business, he endeavoured for a month to find occupation as a wood-sawyer; but not being very successful he suddenly decamped, without informing his host, definitely, whither he was going. Wherever he may be, he is painfully conspicuous from his loss of voice, and the metallic tube through which he breathes.

The foregoing case, although standing alone, throws, it is conceived, some light on the proper treatment of such injuries. Unprofessional persons thought the suture used too sparingly. It is, however, my opinion that had it not been used except in the extreme angles of the wound, and the rest had been trusted to position, that the cure would have been just as rapid and complete As granulations formed, sutures became necessary to secure the lips in contact. But in wounds so extensive, and involving portions of the body, which with the best adjusted means cannot be preserved entirely motionless, all attempts at closure, (except in the angles,) by the first intention, will prove utterly futile.

It is asserted by Broussais, (Physiology p. 277,) that "if we make an opening into the trachea, or the crico-thyroidean membrane, the voice is lost. An incision made between the thyroid and the os hyoides, does not destroy it. The section of the arytenoids allows it to remain, while a more profound lesion of them abolishes it." The incision, in this instance, being *above* the os hyoides, the arytenoids must have escaped entire; but not the least sound, except a flat disagreeable wheezing, in excited respiration, or in coughing, has been made since the accident. Perhaps it is to be ascribed to the division of the superior laryngeal branches of the par vagum. According to the experiments of Mr. Haighton, however, (Memoirs of Medical Society of London, Vol. III.,) referred to in Wistar's Anatomy, it appears "that the *recurrent* branches supply parts which are essentially necessary to the formation of the voice, whilst the laryngeal branches supply parts which merely influence its modification or tone."

The case affords an interesting exemplification of the connexion of

the portio dura, or respiratory nerve of the face, of Sir C. Bell, with the acts of respiration, together with its distribution to the nostrils, the larynx and trachea, and the sympathy consequently existing between them. In deep, or laborious breathing, particularly soon after the accident, although all the air was received into the patient's lungs, through the opening leading into the larynx, yet the nostrils expanded and collapsed nearly as much as if it had entered in the *ordinary manner.*

An additional fact is furnished in relation to the sensibility of the lining membrane of the larynx. Although a drop of water, or a crumb of bread, passing accidentally into the glottis, produces a most violent cough, yet a tube, one-third of an inch in diameter, was worn almost constantly in contact with that part, without having caused, except for a few moments after its first introduction, either irritation or pain.

The loss of the os hyoides with recovery is an uncommon, if not an unique occurrence. Some of its offices and uses are thus described in a popular work, (Bell's,) on anatomy.

"It is the centre of the motions of the tongue, for it is the origin of these muscles, which compose chiefly the bulk of the tongue; of the motions of the trachea, or wind-pipe, for it forms at once the top of the wind-pipe and the root of the tongue, and joins them together; of the motions of the pharynx, or gullet, for its horns surround the upper part of the gullet, and joins it to the wind-pipe; and it forms the centre for all the motions of the throat, in general; for muscles come down from the chin to the os hyoides, to move the whole throat upward; others come up from the sternum, to move the throat downwards; others come obliquely from the coracoid process of the scapula, to move the throat backwards, while the os hyoides still continues the centre of all these motions."

Notwithstanding this, its loss appears to be but little felt by the patient. He has, apparently, the ordinary motions of the throat; swallows without the slightest difficulty, and with the usual rising of the larynx. The tongue also can be protruded, but not to its full extent.

It is well known that in great muscular exertions, such as lifting heavy weights, or pulling at the oar, the lungs are filled with air, and the glottis closed by bringing it, through the agency of the thyro-hyoid muscles, in contact with the posterior surface of the epiglottis cartilage. Be the ultimate object of the action what it may, it is evident that either, through remaining weakness, or from an inability to make an economical expenditure of the air in the lungs, the respiration of this unfortunate individual, while engaged in laborious occupations is, in some measure, hurried and anhelating.

New London, September 23d, 1837.

Art. III. *On Staphyloraphy.* By John P. Mettauer, M. D., of Prince Edward C. H. Virginia. [With a Plate.]

Cleft palate, whether contemplated as a deformity, or as the cause of much inconvenience to its subjects, presents itself to the humane surgeon as an object demanding his most deliberate and serious attention. Certainly no congenital defect of the human form exceeds the deformity it imparts or elicits more general sympathy for the unhappy victims of it; and as a source of individual inconvenience, few if any are more prolific or disgustful.

Although surgeons early became acquainted with the existence and treatment of congenital division of the lip, a kindred affection, and not unfrequently complicating it, fissure of the palate, seems to have received very little attention as a proper object of surgery, until within the last twenty-one years.

The honour of having first performed the operation for the correction of this latter deformity, is due to Professor Graefe of Berlin. Near about the same time, (1816,) or perhaps a few years subsequently, Professor Roux of Paris, attracted attention to the same subject, and upon the operation contrived by him was bestowed the appellation of staphyloraphy, or palate-suture.

In the early history of this operation no one seems to have enjoyed such extended and ample opportunities for cultivating an acquaintance with it, or the infirmity demanding it as a means of relief, as must have fallen to the lot of this last named distinguished operator; and down to the present period it would seem that he may still maintain a decided pre-eminence, if we are to decide from the many cases reported to have been treated by him, amounting to nearly fifty in number. The reputation which Roux enjoys as an operator, and the position occupied by him as a public teacher in the great continental emporium of medical and surgical science, readily enabled him to blazon forth his operations and successes in this new achievement of science and skill, through his lectures and the journals, until a general interest throughout Europe and this country was elicited in regard to it. Soon after Roux's successes were known, other surgeons, both on the continent and in Great Britain, turned their attention to the subject; and the operations of Professors Dieffenbach of Berlin, Alcock, Mayo, and others of England; and of our countrymen Drs. Warren, Stevens, Smith, Hosack, and others, succeeding each other in rapid succession; furnish a satisfactory commentary upon the deep interest felt among surgeons to bring the operation before the profession, as a legitimate object of careful attention.

In the United States, Professor Warren of Boston, has generally been regarded as the first who operated for cleft palate, though his claims to precedence, in this respect, seem not to be fully established above those of the late Professor Smith of Yale College, who must have operated very nearly about the same time.

In 1826, the operation was performed by Dr. Stevens of the city of New York; and in September, 1827, by ourselves for the first time.

Dr. Dieffenbach seems to have been more fortunate in the contrivance of means for the easy execution of this operation, than his European brethren; and he really conferred a great benefit by the introduction of the leaden suture, porte, &c., in closing the fissure. His forceps for confining the lips while the margins are pared off, are less commendable, though they may, in his hands, have effected every thing claimed for them by him. In the United States, Drs. Warren and Hosack have made the most important contributions to our stock of instruments, for an account of which, the reader may consult this Journal, Art. I., in the No. for November, 1828; and Dr. A. E. Hosack's Memoir on Staphyloraphy, published in New York in 1833.

The *causes* of congenital cleft palate, have not yet been satisfactorily ascertained. The infirmity may result from power acting upon the fœtus in utero, through the imagination or feelings of the mother; or it may occur associated with certain congenital and hereditary diseases, in the relation of cause and effect. It doubtless is the result of imperfect developement of the part involved in the fissure; or of an arrest of the process by which the organs are unfolded; and as the causes of such an arrest are only conjectural, all is hypothesis, both as to them and the palatine fissure itself.

In considering the means for the correction of cleft palate, we shall contemplate the infirmity under three divisions, each of which will demand a treatment in some respects peculiar; that is: 1st. Division of the uvula only. 2ndly. Division of the uvula and soft palate; and 3dly. Division of the uvula, velum, palatine bones, and of the palatine process of the superior maxillary, in which the division sometimes continues entirely through the alveolar process, laying the floor of the nasal cavity completely open. In this division harelip occasionally occurs as a complicating contingency.

In division of the uvula only, the deformity presents itself in the most simple as well as remediable state. In these cases the uvula may be cleft entirely through its substance, from the apex to the base, or be only partially divided. In either case little inconvenience results, whether in modulating the voice, or in attempts at deglutition. The voice, although rendered somewhat nasal, is not so much disor-

dered as to become disgustingly indistinct; it only assumes such a state when the uvula is divided entirely through its base.

Individuals labouring under this modification of cleft palate are prone in a peculiar degree to catarrhal affections, and inflammations of the fauces, throat, and trachea. The almost constant irritation of the divided and sensitive uvula, kept up by the unequal actions and movements of this organ, will enable us to account for the almost constant disposition to cough, as well as for the various guttural affections so common in these cases. We are inclined to believe that simple divisions of the uvula are much more perturbing of the functions of the mucous membrane of the trachea and bronchi, than when the cleft extends into the velum and soft palate. In this state the uvula is very often enlarged and elongated from congestion or inflammation of its vessels.

When the cleft extends quite through the uvula, and more or less into, or to the base of the soft palate, an example of the second variety of the several modifications of the infirmity is presented. In this, as well as in the preceding, the division is confined to the median line, and separates the parts equally. The cleft is more expanded, and disposed to gape and widen as the individuals increase in stature. Its margins, too, are more or less thin, even and smooth, from the apices of the uvula to the angle in the velum. There is generally in this stage of the cleft a shortening of the soft parts, which not only renders deglutition difficult, but also greatly disorders the voice, by rendering it inarticulate and strongly nasal. Guttural articulation will be more or less imperfect in this, as well as every other modification of the infirmity, in proportion to the difficulty of closing the passage from the fauces into the nasal cavity during the efforts to enunciate. In this state these difficulties are considerably augmented; and, besides the disorders imparted to the nasal movements, they cause embarrassment in attempts at deglutition, which are often followed by accidents of a most loathsome and disgusting nature. The parts involved are disposed to excessive secretions of mucus, which, accumulating on the surfaces, becomes thickened, adhesive, and finally muco-purulent, causing fœtid breath and the expectoration of prodigious quantities of tough mucus. The rapid evaporation continually going on from the fauces and nasal cavity reduces the secretions very often to the condition of solids; and, when discharged, they resemble indurated crusts upon healing ulcers. This process, too, renders respirations somewhat metalline in its tracheal responses; and when the movements are accelerated, a whistling sound is produced. Stertor is a very common respiratory phenomenon with individuals thus

affected during the sleeping state, and they invariably breathe when asleep with their mouths open.

An extension of the cleft into the palatine, and occasionally into the palatine processes of the superior maxillary bones, and in some instances even quite through the alveolar processes likewise, constitutes the third variety of congenital division of the palate. In this interesting state of the infirmity, the inconveniences and defects incident to the previously considered varieties are greatly augmented. The voice is in a very great degree unintelligible, deglutition is executed with the greatest difficulty, and, in some instances, cannot be performed at all, thereby subjecting infants to the painful death from inanition. Generally much inconvenience is experienced; and to enable persons to take substances into the stomach, it is necessary to close the anterior openings of the nostrils, especially when fluids are to be swallowed.

In this state the cleft consists not so much in a division of the textures involved, as of actual deficiency or want of substance. The cleft is more or less extensive, and generally presents a chasm of appalling magnitude, the margins of which in many instances cannot be approximated or brought into contact, as in the varieties already considered, even when very great force is employed in the efforts. In some instances the fissures are bounded by narrow margins, which only serve to point out the dividing line between the nasal and faucial cavities, without affording any material portion of the natural septum; and they meet anteriorly, to form an angle more or less obtuse.

As far as our observations have extended, it is questionable whether these last varieties of the cleft do not impart less disturbance to the constitutional health than those of more limited extent. In these examples the uvula is so reduced in magnitude and modified in character, as to rob it of much of its natural and characteristic sensibility; and on this account the parts are less liable to the disorders generally induced in them in a natural state.

The conditions of the respiratory organs and movements are very nearly the same as those already noticed connected with the preceding states of the cleft. Possibly the larynx and trachea may become more arid, and the stertor during sleep louder and more sonorous, from the perfect inability of the velum to direct the air through the nasal passage on to the rima glottidis, larynx, &c. In consequence of the shortening and retraction of the uvula and velum, as well as the investing textures spread upon the palatine and other bones forming the floor of the nasal cavity, the cleft seems almost to convert the two

cavities into one; and to this peculiarity the difficulties of correcting the deformity in this state of its existence are chiefly attributable.

In no department of surgery has more inventive ingenuity in the construction of instruments been displayed, than in the operation for cleft palate, without, however, obtaining conveniences and facilities commensurate with the difficulties to be surmounted. Still the surgeon is enabled, with comparative ease, to treat most of the ordinary cases with the means now employed, but would be greatly aided in the management of every case by more convenient instruments and contrivances; and especially those generally conceded to be irremediable, or capable of only partial amelioration. It is an effort to supply some small additional aid, principally in regard to the latter description of cases, derived from our individual experience with this infirmity, which elicits the present humble contribution.

Before entering upon the examination of the surgical treatment of cleft palate, we will premise a few considerations relative to the circumstances which should favour or discourage the operation, and also touching the subject of constitutional or bodily preparation of individuals about to submit to surgical treatment in such cases.

From satisfactory trials, we are fully convinced that the most suitable age for this delicate operation is somewhere near or within the range of puberty. With females it may generally be safely attempted as early as the sixteenth year; but with males, not sooner than eighteen. To render the means demanded in the execution of staphyloraphy perfectly available, entire willingness and submission on the part of its subjects must be felt and exercised; without this, it would be next to impossibility to effect any thing in such cases. The head and body, tongue and fauces, and even the organs of respiration, require to be constrained in some degree to enable the surgeon to employ his means efficiently. An individual about to undergo the operation, should be old enough to appreciate both the suffering and painful privations connected with it, as well as the benefits likely to be conferred by it if successful.

In the selection of cases favourable for the operation, a strict regard should be had in every instance to the state of the general health. A feverish state of the system, or a depressed condition of the nutritive powers, as they never fail to retard or deteriorate the adhesive process, must invariably discourage the operation. Conditions the reverse will, if our views are correct, constitute the constitutional prerequisites most favourable for it. The operation should never be attempted while patients are suffering from cough; nor will it be safe to operate with females who have long laboured under fluor albus to

any considerable extent; or males affected with extensive suppurating and ulcerating conditions of the body, as each of these states greatly disturbs the adhesive process. Enlargements and ulcerations of the tonsils, especially if they are the result of a strumous susceptibility and catarrh, should also discourage the operation; so far, at least, as to induce a doubtful prognosis.

The success of this delicate operation will, in a very essential degree, be influenced by the season of the year at which it is performed. We therefore invariably select summer or mid-winter as the most favourable periods. These seasons being less subject to sudden and frequent transitions of temperature, the patient is less liable to catarrhal affections; and it is on this account chiefly that they should be preferred for staphyloraphy, as well as other delicate operations about the mouth, fauces, eyes, ears, &c.

From some experience we have long since unhesitatingly discarded the belief that a constitutional preparation by medicinal agencies, diet, &c., is demanded as an indispensable prerequisite to a large majority of operations. So far from subjecting our patients to such measures, we have, with few exceptions, preferred to operate without disturbing the balance of health in any way. In most surgical diseases unattended with fever, we do conceive that any change effected by medicines would essentially perturb the constitution, and induce more or less of that irritative susceptibility in its secernents so much disposed to invite traumatic fever and inflammation. Fully impressed with the importance of these views, we would advise against any reduction of the stock of constitutional vigour as preparatory to the operation for cleft palate, unless a feverish state actually demands it. The only constitutional change demanded, are such as may be rendered necessary to acclimate individuals who may possibly reside in locations essentially different from those resorted to for surgical aid. With all such it would be proper to delay the operation for some time; and possibly, too, a change of diet, as well as the administration of medicines, might be required to aid in the work of acclimation, should individuals inhabit malarial regions.

As a preparatory surgical measure, we would in some of the cases of cleft-palate, advise that the uvula and velum should be familiarized as far as possible to the touch of instruments, or of the finger. To effect this end, these sensitive organs should be frequently subjected to the application of probes, forceps, and the extremities of the figures. At first the impressions will generally prove so irritating as to provoke retching and sometimes emesis; but a perseverance in the trials will finally, and in a very short time, render the parts in a great

degree insensible, and capable of being touched without much inconvenience. This acquired insensibility will greatly aid the surgeon in his delicate manipulations; it will also lop off from the operation one of its most disagreeable concomitants, the retching, and thus at the same time accommodate the patient and surgeon. To uvulal cases, and when the division extends only partially into the velum, these preparatory measures are more especially applicable.

When the operation is to be executed, the subject of it should always be seated in a chair of convenient height, with a moveable back, regulated by a screw, similar to a barber's chair, upon the upper extremity of which a head piece must be fitted for the reception and support of the head, and padded or cushioned. The most favourable exposure for this operation is a southern one: the operation may nevertheless be executed and with much ease subjected to the mild light of a northern exposure, in which situation we once operated without the least deficiency of light. The patient must be so placed that the light shall enter the mouth obliquely, or the surgeon so place himself as to contemplate the parts in a line passing near the commissures or angles of the mouth, so as not to intercept the light in its passage to the fauces with his head or hands. The period between the hours of 11 A. M. and 2 P. M., is the most favourable, as affording the best light.

After the patient is properly seated, and the head inclined upon the cushion of the sliding back of the chair, so as to give the light its direct passage to the fauces, the jaws are then to be separated and kept asunder by interposing between the teeth a soft bit of wood of convenient width, and thick enough at the edges where in contact with the teeth to prevent a rocking motion, which the inferior jaw is disposed to impart to it, and which might result in its displacement, if resting upon very thin and narrow bases. The opposing margins of this bit of wood should be parallel, and the sides and ends excavated. The ends besides being hollowed out, must be pared or rounded off to a thin smooth edge; the length of it to be from one and a half to two inches; which completes the initiatory stage of the operation.

When the cleft is confined to the uvula, or to this as well as the velum at the same time, any of the modes which have been adopted and practiced from the date of Graefe's first operation down to the present time, may be pursued. But the operation, as contrived and executed by Dieffenbach, unites more advantages than any other of which we have seen an account, and should generally be preferred in the simple examples of the infirmity. In our own hands it has been successful more than once; and in the execution by no means difficult or troublesome. As performed by this dexterous operator and dis-

tinguished rhinoplastic surgeon, staphyloraphy consists of three steps: 1st. The denudation of the margins of the fissure by paring away its edges. 2ndly. The application of the ligatures or sutures. 3dly. The approximation and confinement of the margins so as to maintain their coaptation; and so far as our own experience enables us to decide, these constitute the only safe and rational series of operative agencies adapted to such cases. The introduction of the leaden ligature by Dieffenbach, in the place of the materials ordinarily employed in this operation, we regard as one of the most important improvements which it has received. Besides the mechanical advantages of this ligature, it possesses the peculiar power of paralyzing the absorbing agencies so far as to enable it to remain longer in the animal textures without loosening, or cutting itself out, than any other known substance.

The patient being placed as described in our directions in regard to the initiatory stage of the operation, the surgeon with a delicate double hook, or forceps gently curved and perforated in several places near the extremities of the blades to enable them to retain their grasp more securely, and directed by the right hand, takes hold of one of the margins of the cleft, as near the extremities of the uvula as possible, and exterior to the edge sufficiently to expose a narrow belt between the border of the cleft and blades of the instrument. Having secured the margin, he now passes the handle of the instrument into the left hand, with which the parts are to be gently elongated by drawing them downwards and forwards until moderately tense. With a corneal knife, or an instrument of its delicacy, and possessing two cutting edges supported by a neck-like shank, and a handle of convenient size and length, he next proceeds to denude the margin of the confined lips of the cleft. This is to be effected by inserting the point of the knife as near the apex of the uvula as possible, and carrying it edge foremost quite up to the angle of the cleft, so as to separate a very thin portion of the tegumentary covering from the border of the lip, which is confined still by attachments at the angle and uvula. Great care should be taken to remove no more of the substance from the margins of the lips of the cleft than just sufficient to denude them perfectly through their whole extent. By forming the section from below upwards, the effusion of blood will not invest and obscure the delicate parts to be incised, and thus perplex the operation; on the contrary, the operation is by that means rendered more easy, certain, and precise in the execution, and may be, at a single stroke, accomplished in many instances. As soon as the section has reached the angle, the knife, by reversing the movement, may be directed to the uvula, and the denudation of

this portion of the margin effected by a continuous cut in that direction. Sometimes it will be found most convenient to effect this part of the operation with a keen pair of scissors, in consequence of the shrivelled and yielding nature of the uvula. The uvula may now be released, and all further efforts suspended until the bleeding ceases. In all cases of the operation it is adviseable to delay no more time in its prosecution and completion, than is absolutely necessary for the subsidence of the traumatic hemorrhage, and short respites from pain, as the parts soon become morbidly sensitive, and from this cause might not only greatly increase the pain of the succeeding steps of the operation, but endanger the adhesive process by predisposing to disorganizing inflammation in the parts involved in the operation.

As speedily as possible the surgeon should proceed with the denudation of the margin of the opposite lip of the fissure, which is to be executed as just described. When completed on both margins of the cleft, the portion excised should resemble in form the letter V inverted; and, if possible, must be removed entire to enable the operator to know positively that every part of the edge is denuded. The parts may now be freely washed with cold water held in the mouth, and by gently gargling with it. This represses the bleeding in a few minutes, and allays, in a great degree, the pain.

We prefer denuding the margins of the lips before inserting the ligatures for several reasons, but chiefly because by that means the possibility of dividing them is precluded; the sutures may be inserted at more equable distances from the margins, and because the most painful step of the operation is reserved for the conclusion of it. Hemorrhage, from the denuded margins, cannot be adduced as an objection of any weight to this or the first step of the operation, as it ceases in a few moments after the incisions are formed. Nor should the few moments intervening between the denudations and insertion of the ligatures form an objection to it, as they certainly cannot, or have not, in our hands at all affected union by the first intention. In Mr. Alcock's case, the partial union was the consequence of insufficient support to the denuded edges of the lips of the cleft, by reason of not inserting a sufficient number of sutures to approximate them closely and steadily, and with a force adequate to their complete coaptation. His failures could not have been the result of the denudations before the insertion of the ligatures, as the success which followed early denudation, and the pins, clearly proves that in the first operations that the margins were either imperfectly coaptated and supported, or the margins were insufficiently denuded.

We object positively to scissors as an instrument for the removal

of the margins of the lips of the cleft—so far as they have been recommended in the preceding directions excepted—as being unhandy and exceedingly uncertain in their execution: as forming a cut surface more or less convex, besides pinching and bruising the parts at the same time, which must, in some degree, interrupt their union by the first intention. Moreover, should the margins of the lips of the fissure be bounded by inequalities, or indentations exist to any extent, it would be impossible to denude them with scissors only, without removing more of their substance—already, perhaps, greatly deficient—than would be justifiable or proper.

The second step of the operation, or the approximation of the denuded margins of the lips of the fissure may be attempted as soon as the bleeding ceases. For its accomplishment the porte-aiguille and needle generally employed, will be found both handy and efficient instruments. Dr. Warren's porte-aiguille is, perhaps, as convenient as any; but it is defective in the formation of its thimble-like cavity, for the reception of the eye-extremity of the needle, without a throat or fissure on the inner aspect of the short branch, or proper needle-porte. The instrument of this construction which we prefer is seven inches long, something less than two lines, say one and a half, in diameter, with a recurvation of the porte extremity, and a branch not less than four lines in length, containing a very delicate thimble-like cavity, its whole length perfectly cylindrical, and opened on its internal face by a fissure, extending quite to the bottom of the cavity: the fissure should only admit a common sized ligature, and should be well smoothed and polished. At the handle extremity, it would be most convenient to have the shaft of the porte of an octagonal form as far as it is to be embraced by the fingers of the operator; the remainder of it may be round, and must be well polished. The recurved branch should not be parallel to the shaft, but must stand a little off from it, with a space of fully two lines in extent between them. The needle which has been employed in our operations, when it has been found most convenient to use this form of porte-aiguille, should be not less than seven lines in length, of sufficient diameter for the formation of eyes of convenient capacity, and should have two eyes of equal size in close proximity and near the obtuse extremity of it. The point of the needle should be flattened and rendered very delicate at its extremity, while the eyed portion of it, as far as it shall be embraced by the thimble-like cavity, must be round and formed to fill that cavity with tolerable accuracy, but not so tightly as to prevent its easy insertion into, and removal from the cavity. (See *Plate, Fig.* 2.)

From what has already been intimated, in regard to the metallic ligatures, we shall be anticipated in giving them a decided preference, as a means of approximating the margins of the cleft, and our experience with them warrants the belief of their vast superiority over every other material for such uses. Besides the advantages already considered, "They allow of being tightened or loosened at pleasure, and an opportunity, during the operation, of examining the parts without becoming soft or unmanageable, as the common ligature is apt to do, when softened by the saliva or other fluids of the mouth." The ends of the wire being twisted together after the margins are approximated, confine them securely; and if, from the supervention of a high degree of traumatic inflammation and swelling, fears are entertained for the safety of the textures, unless the sutures can be relaxed, they may be loosened at once, and without pain, simply by untwisting the ends of the wires partially, until the undue tension produced by them is relieved. The greatest convenience afforded by the metallic ligatures in the execution of this operation, results from the gradual and unyielding force exerted by them in approximating and confining the denuded margins in exact apposition; and by their enabling the surgeon to augment these agencies, from time to time, without much pain to the patient, or the least danger of disturbing the position, or the adhesive process of the parts involved in the operation. Little or no difficulty, in most cases, attends the application of these ligatures, if they be sufficiently delicate.

Besides the porte-aiguille, needle, and metallic ligatures already described, it will be necessary, as preparatory to this step of the operation, to be provided with several silken ligatures of a size to suit the eyes of the needle which may be used, and a pair of forceps of sufficient length to reach the uvula, without obliging the surgeon to carry the hand, with which the instrument is held, so near the mouth as to intercept his view of the parts. The silken ligatures should be well waxed, and from three to four inches in length: with one of them the needle is to be armed by doubling it in the middle, then inserting the end of it into the eye nearest the point, and drawing it through so as to form a noose five or six lines in length, and carrying it back again through the remaining eye to the side at which it was first inserted, and drawing the portion of it between the eyes close to the shaft of the needle. This arrangement places the noose and extremities of the ligature on the same side of the needle, where they hang. The leaden wire should now be appended to the noose of the silken ligature, by one of the loops previously formed at its extremities, which must be made to embrace it very closely, by gently striking the

loop at its flexure, with a bit of wood. The wires, after they are cut off, and the loops formed at their extremities, should be three inches in length. Thus arranged and armed, the needle may be inserted into the thimble-like cavity of the porte, care being taken that the extremities of the silken ligatures shall both hang through its throat. The advantages of this contrivance will at once present themselves to the intelligent reader. Fitting the socket of the porte, and the silken portion of the ligature, which may now be denominated compound, hanging through its throat, it is clear that the position of the needle cannot be varied, or a rocking motion imparted to it, when the point is forcibly urged against a body to be transfixed, as in the execution of this step of the gaumennath operation. Thus armed, the surgeon directs the porte extremity of the instrument with the right hand into the cleft, and carrying it upwards and backwards until the point of the needle clears the nasal aspect of the lip of the fissure, he turns it over the margin by rotating the shaft of the porte between the finger and thumb, giving it at the same time a lateral motion towards the lip. Having directed the point of the needle so as to transfix the lip of the cleft from one to two lines from its margin, and as near the angle as may be necessary to approximate the denuded surfaces between the points at which the needles are to enter and the angle, by a retracting movement the needle must be brought through the lip until its point presents fully a line or a line and a half on the faucial side of it. Passing the porte now into the left hand, the surgeon, with the forceps in the right, takes hold of the presenting portion of the needle, and draws it downwards and forwards from the socket of the porte, and through the lip of the fissure into the mouth. The porte must now be removed by making it retrace the movements pursued when introduced; and, without loss of time, the compound ligature should be drawn in the direction of the needle until the metallic portion of it has entered the cavity of the mouth a few lines beyond the loop. In the execution of this step, less difficulty will be incurred than might be imagined, especially in making the metallic portion of the ligature traverse the puncture formed by the needle. As soon as the slight bleeding which follows the passage of the ligature ceases, and the loop of the other extremity of the wire is connected with the noose of the same or a new silken ligature, and the porte armed with the needle, the ligatures should be inserted in the opposite side of the cleft, in the same manner, and at a point as nearly opposite to the first as possible. The two ends of the wire must now be brought together; first, by gently drawing them on opposite sides with the forceps until they remain nearly in contact, and in some degree approximate the mar-

gins; they may then be taken hold of with the forceps, and gently drawn downwards and forwards until the opposing margins are brought into contact, and the extremities of the wire below the oral or faucial surface be rendered straight and somewhat tense. Still held in the grasp of the forceps, they are next to be twisted together by a gentle motion from left to right until the denuded margins are held in contact by them. The twisted portion may now be cut off to within five lines of the noose. In as rapid succession as possible, compatible with safety, the remainder of the sutures may be applied as already described, until a sufficient number to close the cleft shall be introduced. From one to four will be sufficient to close completely a very extensive congenital cleft; but the number of the sutures, and the distance between them, must be regulated by the peculiar circumstances of individual cases. In their introduction, very especial care will be required that they shall not pucker the margins, which will certainly be the case if the points at which they transfix their respective lips are not exactly opposite. When a sufficient number to close the fissure are inserted, they must be carefully but effectually tightened in alternation, commencing at the angle, and continuing the process on to the uvula. There will be some danger of increasing the force of the ligatures to a disorganizing extent, unless some easy method be adopted for its regulation. In our operations, we have continued to apply the force by twisting the ends of the wires together until the ends thus formed stand out firmly, and, when touched with the forceps, vibrate with the spring and elasticity of the bristles of a brush, which they will not do, unless the edges are confined steadily together by them. Taking this, then, as our guide, it will be very important to observe the effects carefully,—as the wires, in this stage of their tightening, are twisted,—and not to materially increase their force subsequently. The same conditions of the projecting ends of the wires will also enable the surgeon to determine, during the secondary treatment, whether or not the sutures are doing their duty, and when they may or may not require to be tightened.

After the sutures have been well tightened, the twisted ends should be cut off with scissors, within three or four lines of their respective loops. The parts may now be very carefully washed, by repeatedly filling the mouth with cold water until the blood is removed. This completes the operation. In most cases of cleft palate, the needle-porte, which has been considered, will be found both handy and efficient. But cases occasionally occur in the treatment of which it cannot be employed with convenience or advantage, and for those examples more especially we have contrived two other needle-portes,

though they will be found equally applicable, particularly one of them, to every case in which the one already described can be used. There is an especial advantage in possessing a variety of instruments for such an operation as staphyloraphy, as it not only enlarges and extends the surgeon's resources, but inspires him with confidence in those resources, as well as increases his stock of self-possession from the belief that he is well supplied with the means to guard him against a surprise in a sudden emergency.

The first of these instruments we shall describe under the name of the injecting or cannulated needle-porte. It consists of a cannula of the length and form of the porte already described, one line and a half in diameter; the calibre of small size, so as not to weaken the instrument by rendering it too thin in its walls; with a fissure or throat on the inner aspect of the short branch extending to the beginning of the curve which supports it, and communicating with its portion of the canal; and a sliding shield on the corresponding side and directly opposite to the extremity of the short branch. The opening into the cannula, at the handle extremity, must be square for the reception of the stiletto, which should also be square, and made to fit the opening just described, accurately but easily. It should be formed of steel, with a handle of convenient construction, to project fully an inch beyond the handle extremity of the cannula, and a chain in that part of it which is to traverse the curve and short branch, extending quite to its extremity. The whole instrument, with the exception of the stiletto, should be formed of silver of the hardest kind. The needles required for this porte differ very little from those already described: indeed, there will be a convenience in having them of the same form and size, as they may then be used indiscriminately and without the trouble of accidental transposing, as might sometimes take place when several descriptions are employed. With this porte the needles should be accurately fitted for reasons already expressed. (See *Plate, Fig.* 4.) This instrument was contrived and employed by us for the first time in 1830. In 1832 we had a second set constructed by Mr. Schively of Philadelphia. We make these statements to show, that although our instrument resembles in principle the ingenious contrivance of Dr. A. E. Hosack of New York, its invention preceded, at least, three years the publication of his memoir, in which his instrument is figured and described, and that we are indebted to no precedent for its invention.

The directions for the arming of the porte will be anticipated by a reference to the instrumant itself, and will not be more particularly given in this place, as well as those to govern and direct the introduc-

tion of it into the fissure, as they too, have been anticipated in what we have remarked relative to the first porte described by us. The extremity of the short branch, armed with its concealed needle, is to be placed in contact with the appropriate portion of the lip of either side of the nasal surface of the cleft; the ring of the shield, previously retracted, is now to be depressed and made to embrace the opposite surface of the lip with some degree of firmness. Thus confined and fixed, the intervening portion of the lip of the fissure must be transfixed, by forcing the extremity of the retracted stiletto against the opposing or obtuse end of the needle. This procedure, from the convenience of the instrument, can be accomplished with very great facility, and after some little familiarity with it, will only require to be used with one hand; the projecting needle may be drawn through with its associate compound ligature, as already advised. Reversing the movements, will enable the surgeon to disengage the needle-porte, and to withdraw it from the mouth. By repeated reapplications of this instrument, properly armed, sutures may be introduced in succession, in sufficient number to approximate the lips of the cleft completely, as well as to confine them in apposition.

The advantages of this porte are obvious and decided. Besides enabling the surgeon to execute the passage of the ligatures with precision in the more fixed portions of the lips of the cleft, it will be found especially convenient when the parts are vacillating and pendulous. It will be particularly adapted to applying ligatures to the velum and flaccid uvula, as well as to an operation which will be described in the sequel. By compressing the parts between the opposing powers of the short branch and ring of the shield, and at the same instant transfixing them by a sudden injecting application of the stiletto to the needle, less pain is experienced, and the operation executed almost instantaneously.

The second needle-porte which we have constructed was also contrived in 1830; and although originally for a very different operation, will be found well adapted to certain conditions of the operation of staphyloraphy. It is denominated the ginglymoid, or moveable angular needle-porte, and is exhibited in the plate, *fig.* 5.

This instrument differs little in the principles of its action as a needle-porte from the first which has been described in this paper. It is chiefly for its varying forms that we regard it as useful in the gaumennath operations, and this property adapts it almost exclusively to the partial divisions of the velum from accidents; or imperfect reunion of the lips after an operation, when only a small portion of the fissure remains ununited. In either of such cases the sutures could not be

applied with the portes already described, because it would not be possible to pass their porte extremities through such small clefts into the nasal cavity, at which surface of the lips the sutures should always be inserted. The instrument we are now considering, from its delicate and slender form, can with ease be rendered applicable to all such cases.

The arming of the angular needle-porte consists in adapting the needle, previously armed with a compound ligature, to the mother screw in the extremity of the short branch, (which should be screwed up from its fossa in the long branch sufficiently to render it accessible,) by one or two turns, merely to enable it to take hold. The needle being well adjusted, may, with the supporting short branch, be screwed back into the groove of the shaft, until its point is carried below the margin of the groove. In this condition the porte extremity of the needle-porte must be made to enter the fissure, and to pass on into the nasal cavity until the point of the concealed needle may be supposed to have cleared the nasal surface of the lip of the fissure. Observing carefully the position of the needle, and taking care at the same time that it is on one of the sides of the fissure, it must be screwed out from the groove until the point has been carried at least one line and a half or more over the corresponding lip of the cleft. The instrument may now be retracted, which movement almost instantly urges the point of the needle through the textures with the supporting short branch of the porte. These manipulations are supposed to be executed with the right hand chiefly, and with such assistance as may be necessary from the left. As soon as the point of the needle appears distinctly on the faucial side, the handle of the porte must be passed into the left hand and held by it. The surgeon now, either with the forceps or a brass or silver rod, with an eye formed in the extremity to receive and accurately fitted to the needle, may by a turn or two unscrew and draw it downwards into the mouth, with the compound ligature connected with it. The short branch of the porte must now be disengaged from the lip by reversing the movements, and, as soon as released from the textures, may be depressed into its hiding place in the shaft of the instrument, and the porte retracted from the fissure and mouth. By repeating these several steps and manipulations, as many ligatures as are requisite may be inserted into the opposite side of the lip of the cleft.

This instrument, though somewhat complex in its construction, is easily employed, and with far less inconvenience than would be imagined. In some of the cases to which it is adapted, no other contrivance known to surgeons could be employed at all.

By fitting the needle accurately to the socket, the screws might be dispensed with, which would in some degree facilitate the passage of the needle and ligature. But unless made to fit very accurately, the needle might be displaced from the socket in passing the porte through a narrow cleft; when formed without the screw, the eyes should be placed near the blunt extremity of the needle, and the socket cleft on the inner face of the porte, as already described.

The operations described in the preceding pages, as already remarked, are designed for the correction of the more simple forms of cleft palate, situated either in the uvula, or the uvula and the velum at the same time. They may also be rendered efficient in some of the examples in which the fissure involves the bony palate, or even the palatine processes of the superior maxillaries, when it exists as a fissure only, and without any material deficiency of substance. But when there is a separation of the margins to an extent which will not allow them to be approximated, besides the fissure, these methods alone will not be found sufficient, and for the correction of the deformity, other expedients must be resorted to. We have met with cases of congenital divisions of the palate in which the margins were separated to so great a distance as to defy every effort to approximate them, aided by the means generally employed; and to remedy them we were compelled to draw upon our inventive resources.

The first operation contrived by us in a case of this description, consisted of a series of incisions more or less extensive, formed exterior to the margins of the cleft, and parallel with them, extending from the faucial to the nasal surface on both sides. These incisions being designed as granulating surfaces, were not allowed to reunite by the first intention, but kept apart by interposing between them small portions of buckskin or soft sponge, there to remain until suppuration should be well established, and then to be removed. Incising from the supporting portions of the lips of the cleft a belt more or less wide, and supported at each extremity by the natural continuity of the textures through which they may be nourished by blood, enables us to create an extensive surface for the eliciting and rearing of granulations without the least hazard or danger of disorganizing the parts separated, or their respective lips. In this condition they take on inflammation, which speedily terminates in suppuration; and granulations soon sprouting out from these newly created surfaces, fill up the incisions by which they are separated, and thus widen the lips to a greater or less extent. The first incisions are to be the most extensive; and as the lips are expanded, they should be less so, or

the cicatrices may ulcerate or become disorganized and slough. The newly formed parts cannot be safely incised until perfectly organized. It would be most safe to form the succeeding sections exterior to the cicatrices and in the original textures, as they granulate most readily and freely, and are not liable to ulcerate or slough. Should the parts be deficient in length, the method which we have been describing may be employed in a transverse direction, guided by the views just submitted, but not to divide the tensor palati muscle. Should much inflammation supervene, the parts may be bathed with demulcent and emollient liquids, cool or warm, as may be found most grateful. These agencies may be repeated, after proper intervals of repose, as often as may be required to give to the lips the degree of expansion requisite for the easy approximation and contact of their margins; and as soon as this is accomplished, the operation already described for the correction of the infirmity may be resorted to.

Cures by this method must necessarily be tedious, and the time required for their accomplishment more or less protracted, as the cases are distinguished by fissures of greater or less extent, or lips thin or the reverse.

By this plan, we once succeeded in dilating the lips of an extensive fissure, so that when the patient left us, the opening remaining presented a small perforation only, barely a line in diameter, instead of a chasm, which, when the patient was placed under our care, readily received three fingers without being filled. In this case the voice was greatly improved, as well as the power of deglutition, and enough was accomplished by the operation to prove its utility in similar cases.

The tedious nature of this operation induced us, in another case in which we were consulted, to modify it in such a manner as to render the cure more expeditious; and, although more difficult of execution, as well as painful to patients, we feel confident that it is an important improvement.

The operation consists in making the sections of the lips of the cleft oblique instead of perpendicular, as in the preceding operation; and, as it were, to divide or split them, so as to separate the nasal from the faucial portions of the lips. This method unites the advantages of the flap and granulating process. To be enabled to execute it with the greatest facility, the surgeon must be provided with suitable instruments, particularly several scalpels, for dividing the lips, of the form already described; (only those now required must be more slender and delicate, and terminating in points somewhat obtuse, with the blades six lines long, two wide, and rendered perfectly keen in all their cutting parts;) also several delicate hooks, of different sizes,

and a pair of slender forceps, constructed with a spring to close the blades,—all of suitable lengths.

Thus provided with instruments, and having the patient arranged as we have described in the initiatory stage, the surgeon commences the operation by denuding the margins of the lips of the fissure, as already described. As soon as the bleeding ceases, an incision is to be commenced in one of the lips, a little exterior to its margin, and a few lines anterior to its uvulal verge. The marginal incision on the faucial surface should commence nearly a line and a half or two lines from the margin of the lip. At this point, the knife is to be inserted, and directed in such a manner as to cut the lip obliquely from a line continued from the point of its insertion parallel with the margin of the lip to the angle, to another line passing in or near the base of it on its nasal surface, thus forming the section in the diagonal between these points of the faucial and nasal surfaces of the lips of the cleft. Before forming the section, it would be advisable to fix the lip as already directed, and then, by a continuous incision from the point of insertion upwards and forwards to the angle, to execute the cut. Employing the forceps, now, or one of the hooks, the surgeon may continue the operation, using those instruments to dilate the incision, as he now forms it, by cautious dissection in the direction of the angle, and in the diagonal line between the two surfaces, until it reaches the nasal surface, near the base of the lip. In the execution of this step, great care will be required to guard against cutting through the flaps too soon, and to form them as nearly of equal thickness as possible. It will always be found most convenient to dissect from the uvula upwards, as by that means, the blood, which otherwise might essentially perplex and embarrass that step, will, in some degree, be avoided. These incisions should always extend a few lines above the angle, and must never be carried nearer than two or three to the uvulal margin of the lip of the cleft.

The section of the opposite lip may be accomplished, in the manner just described, as soon as the bleeding from that already accomplished ceases. For reasons already stated, cold water should be freely used for some time after the traumatic bleeding is repressed.

The ligatures must now be introduced, and with as little delay as possible, or the lips may become so tender as to render their application exceedingly painful; and, should much time be delayed, even dangerous. For this purpose, the cannulated needle-porte, armed as already directed, should be employed; indeed, no other instrument of which we have seen an account can supply its place, in consequence of the loose and vacillating condition of the lips. The sutures are in

these cases to be inserted a little interior to the margins of the labial cuts on their faucial surface, so as to permit a belt of the natural covering of each lip of the cleft to be interposed between the denuded margins and the incisions, and embraced by the noose of each of the sutures. The directions already given with respect to the most proper portion of the cleft at which to commence the introduction of the sutures are here reiterated, and under no circumstances will it be prudent to deviate from them, or to begin the insertion of the sutures of the lips elsewhere than at the angle of the cleft.

Although we have described this mode of operating for cleft-palate as if executed upon the lips of the fissure their whole length, it is not to be inferred that we advise the measure in every case. On the contrary, this will seldom be safe, especially when the fissure is very extensive. The sections may be formed as we have described them, the whole length of the lips of the cleft, but it will not be safe to attempt to insert ligatures, at the first operation, to more than a third or half of the margins thus incised. By attempting too much at once, the chances for relief may be lost by the supervention of disorganizing inflammation, and the ulceration or sloughing of the lips. Executing the operation at different times, and after proper intervals of rest, and proceeding from the angle towards the uvula, it may with safety and a very great probability of success be employed even in cases of most extensive vacuities of the palatine septum. Those portions of the lips to which ligatures are not applied will be subjected to the dilating agency of the granulating process, and from this cause, when subsequently to be approximated by the diagonal section, may more easily and certainly be brought into perfect contact. To enable the surgeon to give to this mode of operating all the chances of success available through its several steps, each of which sustains important relations in the series, it will be necessary that time be allowed, not only for their regular and proper execution, but for the subsidence of all previous inflammation, and the perfect consolidation of the parts before another operation can be attempted with safety. In a word, it will not be prudent or safe to repeat any of the steps of this operation very soon after the lips of the cleft have been extensively incised or sutures applied. After the margins of the denuded and incised lips have been approximated and firmly united at the median line of their contact, and sufficient time has been allowed for the subsidence of the several traumatic, irritative, and inflammatory movements, as well as for the consolidation of the union of the parts involved in the operation, the remainder of the cleft may be closed in the same manner, only extending the diagonal section now quite through the uvulal margins, which, after they are

approximated in the line of the fissure by the suture, but not confined in close contact, may themselves have sutures applied on their posterior margins, merely to prevent the displacement of the cut edges, and to keep the surfaces in contact as far as they are opposed to or overlap each other. This operation will be required in the cases attended with great deficiency of substance, and will, if properly executed, restore the septum and continuity of these parts, and in a great measure prevent the shortening of the uvula and velum, so apt to result in such cases.

Should the uvula and velum, however, be well developed, and possess substance sufficient to allow of their easy approximation and contact by the sutures only, this portion of the fissure may be closed and secured by the operations already described for the cure of the more simple forms of the infirmity. This operation will be equally applicable when the fissure extends entirely through the palatine and alveolar processes of the superior maxillary bone, with or without a division of the lip, and when the margins of the cleft, as is usual in such cases, are permanently separated. But when the lip is involved, and the case complicated with hare-lip, staphyloraphy, as well as the operation for this last infirmity, will be demanded. In such a complication, the bony cleft must first be corrected, as the parts then will be more easy of access to the operator, and the operation more easily executed, while the division of the lip remains open: after the long cleft is closed, the operation for hare-lip may be performed at once, or after the cure of the fissure is perfected.

It will be perceived from the direction and form of the section adopted in the execution of the operation we have been describing, that the action of the sutures, in approximating the margins of the lips of the fissure, also serves to maintain the contact of the cut surfaces. By drawing the superior or nasal surface down upon the inferior or faucial, their union, as far as they are in contact, is essentially favoured; and where they are not in contact, the granulating process soon brings them together by filling the vacuity, and at the same time expands and widens the lips of the cleft—thus placing the parts in a more favourable condition for succeeding operations.

The operation we have been describing is far less painful than "*a priori*" might be imagined; and with properly constructed instruments, for executing the sections, can be performed with comparative ease to the surgeon, and entire safety to the patient. When the advantages secured by it to the patients are properly appreciated, the pain necessarily connected with its execution ceases to be an object of fear with them. Without some such rhinoplastic effort, as has been

described in the preceding reflections upon this form of the infirmity, it would not be possible to correct, even in an imperfect degree, its inconveniencies and disgusting deformities.

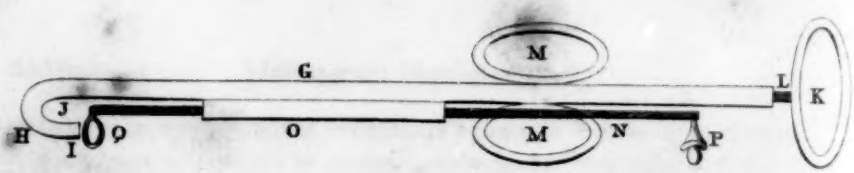
In the traumatic stage it will not generally be necessary to employ any other topical measures than merely to allay the nervous irritation of the parts soon after the operation, and to moderate the inflammation, should it seem disposed to assume a character of inordinate intensity, and for this purpose, the cold water (already advised) soon after or during the operation, with cool or tepid demulcent washes of elm tea, will be found fully sufficient. Generally, the copious effusions of mucous, and other secretions, which so abundantly bedews the fauces, mouth, and posterior nares, render topical applications unnecessary.

A form of traumatic irritation exceedingly apt to follow the operation for cleft palate, and subjecting individuals to excruciating suffering, is that distressing species of headache generally regarded as nervous. From this affection, as a traumatic result, all surgical patients suffer more or less; but in consequence of the near proximity of the nervous filaments, wounded in staphyloraphy, to the ordinary seats of neuralgic pain, it is more liable to follow the operation in violent degrees, than any other. It is indeed neuralgia, and in many instances, of the most intense and violent form.

With individuals of strongly marked nervous developements, it would always be proper, immediately before or after the operation, to administer a commanding nervine, or narcotic, as the one or the other may seem to be indicated, by a deficiency of mobility, or excess of sentient life of the nerves of sensation. By employing such means before distressing pain comes on, much additional suffering may be prevented.

Should a feverish state follow, it must be corrected by the early employment of cathartic enemata, and, should these fail to afford relief, the lancet must be resorted to. These remedies, aided by rigid abstinence from food of every kind, will generally arrest any fever which may follow; and they will also tend essentially to restrain the traumatic inflammation, and favour adhesion. The introduction of medicine into the stomach would endanger the co-aptation of the parts, and is inadmissible at this stage. Patients, to enable them to carry out the system of rigid abstinence from food, drinks, conversation, and whatever might tend to excite the organs of deglutition and speech, will be greatly aided by spending the three first days after the operation, closely confined in bed, in a dark, quiet room.

The condition of the sutures, as well as that of the margins, should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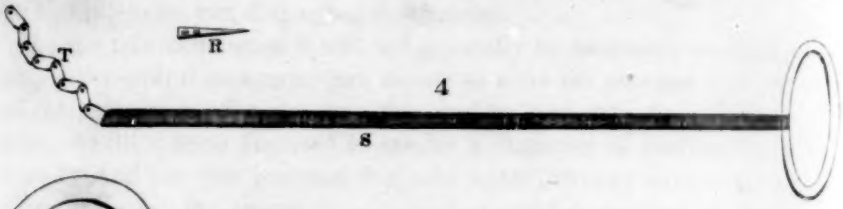
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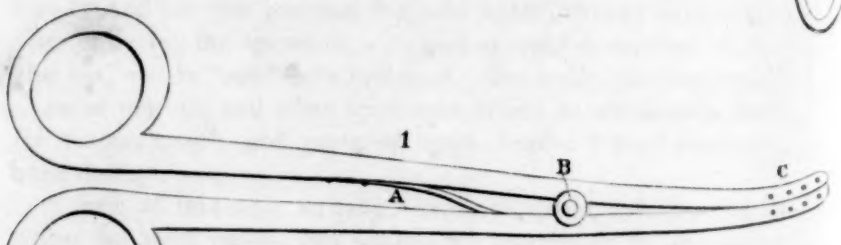
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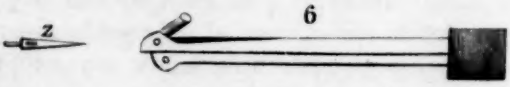
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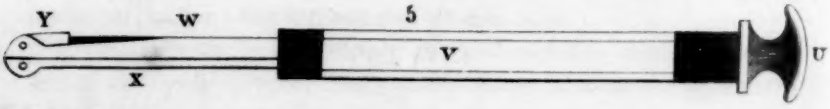
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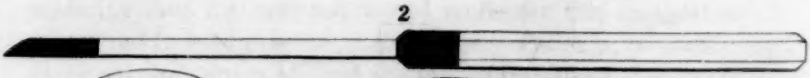
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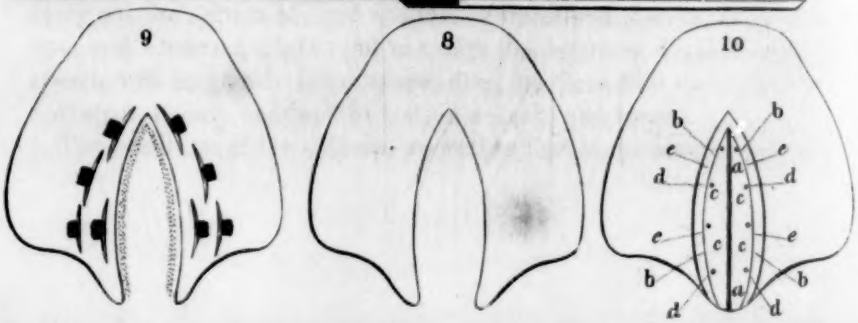
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be carefully examined into daily, so as to enable the surgeon to apply the proper means for tightening the sutures at once, should such a step become necessary; or to relax them if they seem to be exerting an injurious force upon the inflamed lips of the cleft. Some nourishment may be allowed on the third day, and as semi-fluids are most easily swallowed, this form should be selected for the administration of food: rice gruel rendered thick by long boiling, generally answers best in such cases. Thick soup may also be used if the tendency to sink from the long inhibition of food, is considerable. Enemata of nutritious fluids may also be used if patients become enfeebled and faint before it would be safe to take nourishment by the mouth. To prevent, in some measure, the pains and sufferings from the necessary fasting in this operation, we have been in the habit of requiring our patients to partake freely of solid food a short time previous to the operation, and we believe by this expedient we have saved ourselves, as well as our patients, much trouble and inconvenience. When food can be allowed, it should only be taken in very moderate quantities at a time, and after long intervals.

As soon as the union between the lips has become firm the sutures may be cut away; generally on the sixth or seventh day, the first nearest the angle may be removed; and on alternate days, as shall be found safe, the remainder may be removed. This may be effected without pain, and with great facility, by simply cutting one of the branches of the wire a little below the twist, and drawing it away with the forceps already embracing the end of the twist.

Explanation of the plate. *Figure* 1.—Forceps for confining the lips of the cleft for denudation. A, Spring for closing the blades. B, Rivet. C, Perforations to enable them to retain their hold more accurately. The forceps for drawing and twisting the wires should be straight, with a similar spring, wider blades, and without perforations.

Fig. 2.—A delicate two edged scalpel for dividing the margins of the lips of the cleft, and for making sections of the lips either perpendicular or oblique.

Fig. 3.—Needle-porte of the most simple construction. D, The recurved or short branch with the socket E for receiving the needle F with two eyes, and the fissure or throat to admit the two extremities of its ligature when armed.

Fig. 4.—Cannulated or injected needle-porte. G, Cannula; H, short or recurved branch; I, its canal; J, the throat; K, ring of the stiletto; L, stiletto perfectly square; MM, rings or handles of the long branch; N, sliding handle of the shield, confined by the square canal O; P, handle; Q, elliptical ring; R, needle for the canal of the short branch with two eyes; S, stiletto with its chain-like appendage T.

Fig. 5.—Ginglymoid or moveable angular needle-porte. V, handle; U, thumb-screw; W, shank; X, sliding lever; Y, needle-porte; Z, needle with one eye.

Fig. 6.—Represents the shank sliding lever; and the porte elevated from the

fossa in the shank, by the action of the screw impelled by the thumb-screw at the handle extremity.

Fig. 7.—Eyed-rod for unscrewing the needle from the porte.

Fig. 8.—Bifed palate occupying the uvula, velum, and palatine bones, with a deficiency of substance which will not permit the margins to be approximated and brought into contact.

Fig. 9.—The cleft treated by perpendicular incisions, and tents, for the purpose of widening the lips through the dilating agency of the granulating process. This figure represents the wires of the incisions with the extension of the lips effected, as indicated by the dotted lines.

Fig. 10.—The same description treated through the rhinoplastic agency of the oblique incisions and leaden sutures. *a a*, Represents the union of the margins at the median line; *b b b b*, the boundary of the faucial sections; *c c c c*, the spaces intervening between the margins and the faucial incisions, with their natural tegumentary coverings; *d d d d*, &c. the leaden ligatures twisted at their presenting extremities; *e e e e*, the surface of the incised portions of the lips rendered visible after the margins are drawn into contact by twisting the extremities of the wires upon the nasal portions of them, but on their faucial aspects, and is the exact measure of the advantage gained in widening the lips by this mode of operating.

Art. IV. *A new Treatment in a Case of Anchylosis.* By J. Rhea Barton, M. D.

In the North American Medical and Surgical Journal for April, 1827, I published an account of a new and successful operation at the hip, which had been undertaken for the twofold purpose of remedying a most serious deformity and lameness, and of *establishing an artificial joint*, as a substitute for the natural articulation, which had become obliterated by disease, terminating in true anchylosis.

The principles upon which this operation was founded, as well as the circumstances justifying the performance of it, were fully detailed in the publication at that time.

In prosecuting my views for remedying lameness and deformity from the mal-position of limbs in cases of true anchylosis, I have been enabled to present another case successfully treated, under circumstances suggesting a practice of a peculiar character.

In the case of anchylosis at the hip joint, it is to be recollected that the neck of the femur was sawn through, and the distorted limb straightened. The wound of the soft parts was then healed, whilst the reunion of the divided bone was prevented by subjecting it, from time to time, to motion; such as gentle rotation, flexion, and extension, abduction and adduction. After continuing this treatment for a

few weeks, the ends of the bone lost their disposition to unite, became obtunded and smooth, and were held attached to each other by provisional bands or ligaments, and in this manner forming an artificial joint; whose movements were regulated by all the principal muscles by which the original joint had been controlled. Thus fulfilling the ends of my operation, and rewarding my patient for his fortitude.*

In the case now to be described, no attempt was made to establish an artificial joint; as the attending circumstances did not admit of such a consideration. The object of my treatment was to remove deformity, and to restore to usefulness a limb which had unfortunately been suffered to become anchylosed in a mal-position. The following will, I trust, satisfactorily explain the operation and the after treatment of the case, as well as the principles by which I was guided in the management of it.

S—— D——'s, M. D., formerly of Charleston, S. C., but now a resident of Alabama, when a youth of about nine years of age, unluckily had his knee joint involved in inflammation and suppuration so extensively, as to occasion the destruction of the synovial membranes, the ligaments, cartilages, and, in short, every structure peculiarly appertaining to the joint. After a protracted suffering he finally recovered with the loss of the joint; the tibia, femur, and patella having become united to each other in the form of a true anchy-

* The patient, upon whom this operation was performed, enjoyed the use of his artificial joint for six years; during which period he pursued a business (trunk-making) with great industry, earning for himself a comfortable subsistence, and a small annual surplus. Pecuniary losses, however, through the reverses of those in whose hands he had confided his means, sunk him into a state of despondency and desperation, followed by habits of intemperance. This, with all its train of evils, abuse of health, &c. was, no doubt, the cause of the change which afterwards took place in the artificial joint. It gradually became more and more rigid, and finally, all motion ceased in the part. With this exception, the benefits of my operation were retained and fully appreciated until the period of his death; for as the limb had been freed from deformity and restored to a useful position, he had no occasion even for a cane to aid in walking. During an attack of the Asiatic cholera, he expressed a desire that I should be sent for, in order that he might renew his bequest to me of the parts interested in the operation. He recovered from the cholera, but subsequently died of phthisis pulmonalis. The autopsy exhibited the parts as described in the published case, but with the artificial joint anchylosed; a change which had been effected within the two years previous to his death. With ordinary care, in all probability, this would not have taken place.

The final history of this case presents now the important fact, that benefit had resulted, which fully requited the individual for the pains he had endured, and were considered by him, even after the closure of the joint, yet an ample reward for the operation he had undergone.

losis. The loss of the articulation of the knee, however, though a misfortune, did not constitute the *sadness* of his case. It was caused by the mal-position of the limb; the leg having been flexed upon the thigh to a degree somewhat less than a right angle. Hence the only alternatives of which he could avail himself to aid him in walking were, either to use crutches, or to employ a very high block-sole boot, and to lower his stature by flexing the sound limb, in order that both feet might reach the ground. The latter expedient he adopted. The long continued pressure and weight of the body sustained by this defective limb, acting under such great mechanical disadvantages, had at length caused some projection of the instep, and other irregularities, which it is unnecessary to particularize.

This supposed irremediable condition of his limb, with all its ills, the young gentleman endured during the period of about sixteen years. In the mean time he graduated in medicine, and became a successful and highly respectable practitioner; but as his professional labours increased, he found the condition of his limb to be an obstacle not only to his further success, but also a source of unceasing annoyance and vexation. Whereupon, with a resoluteness not surprising to those who knew the strength of his mind, the firmness of his character, and the abundance of his manly courage, he repaired to Philadelphia in order that some relief might be obtained, if it were possible. When consulted by him I found him fully prepared to learn that no benefit was to be expected from any heretofore known practice, and that if he could be relieved it must be by some novel expedient and treatment.

After a candid and full disclosure of my views of his case, and of the means by which I thought he might be benefitted, his own judgment accorded with mine; and believing in the feasibility of the plans, he became urgent for the undertaking. It was accordingly commenced on the 27th day of May, 1835, and pursued as follows:

Two incisions were made over the femur, just above the patella. The first commenced at a point opposite the upper and anterior margin of the external condyle of the femur, and, passing obliquely across the front of the thigh, terminated on the inner side. The second incision commenced also on the outer side, about two and a half inches above the first; and passing likewise obliquely across the thigh, terminated with the other in an acute angle. By these incisions were divided the integuments, the tendon of the extensor muscles of the leg, at its insertion into the upper part of the patella, and some of the contiguous fibres of the rectus and crureus muscles themselves, a greater part of the vastus internus, and a portion of the vastus exter-

nus muscles. A flap, composed therefore of this structure, was elevated from the femur close to the condyles. The soft parts were next detached from the outer side of the bone, from the base of the flap toward the ham, by passing a knife over the circumference of it, so as to admit of the use of a saw. The flap then being turned aside a triangular or wedge-like piece of the femur was easily removed by means of a small narrow bladed saw; such as was used in the operation at the hip. This wedge of bone did not include the entire diameter of the femur at the point of section; so that a few lines of the posterior portion of the shaft of the bone remained yet undivided. By slightly inclining the leg backward, these yielded, and the solution was complete. This mode of effecting the lesion of the bone was designedly adopted, and constituted what I conceived to be a very important measure in the operation. Important, because it rendered the popliteal artery free from the danger of being wounded by the action of the saw, and subsequently the interlocking of the fractured surfaces tended to retain the extremities of the divided bone in their positions until the harshness of their surfaces had been overcome either by the absorption of their angles, or by the deposition of new matter upon them—a change essential to the safety of the artery during the subsequent treatment of the case. Not a blood-vessel was opened which required either a ligature or compression. The operation, which lasted about five minutes, being thus ended, the reflected flap was restored to its place, the wound lightly dressed, and the patient was put to bed, lying on his back, with the limb supported upon a splint *of an angle corresponding to that of the knee previous to the operation.* This position was maintained until it was believed that the asperities of the bone had become blunted, and were not likely by their pressure to cause ulceration of the artery beneath them. This first splint was then removed, and another having the angle slightly obtuse was substituted. In a few days a third splint, with the angle more obtuse than that of the second, supplied its place. Others, varying in degrees of angularity, in like manner came in their turn to support the limb until it had attained a position almost straight. It was then unchangeably continued in that line until the contact surfaces of the bone had united and securely fixed the limb in this the desired direction.

During the treatment of the case, especial care was bestowed in protecting the popliteal vessels against any injurious encroachment upon them. With that view, all antagonizing pressure on the soft parts in the ham was carefully avoided. The limb was rested on two long bran bags, laid upon the splint, with their ends apart—a vacancy

of four or five inches being left between them opposite the lesion of the bone. This interspace was lightly filled with carded cotton, so as to afford a safe support. Every symptom of pain or uneasiness in this part was promptly attended to. The occasional issue of a drop or two of blood from the corner of the sore, during the process of dressing the limb, caused me some solicitude in this case; whereas, ordinarily I should have considered it as a matter of no moment—it being so frequent an occurrence during the dressing of wounds, owing to the disturbance of the granulations, especially in compound fractures. The wounded soft parts finally healed and quieted his anxiety. The straightening of the limb having been very cautiously and by degrees effected, the first two months elapsed during the accomplishment of this object. Having then reduced it to the desired position, means were carefully observed to retain it so until the reunion of the bone had been fully completed; which occupied two months longer. The constitutional symptoms were such as usually occur in compound fractures—somewhat severe, but at no time alarming. Throughout the whole treatment it was not found necessary to bleed him, or to have recourse to any very active constitutional measures. He was occasionally indisposed from irregularity in the digestive functions, but was always speedily relieved by resorting to mild and appropriate remedies.

At the end of about four months from the date of the operation my patient stood erect, with both feet in their natural position, and the heels resting alike upon the floor, although a slight angle had been designedly left at the knee, in order that there might not be any necessity for throwing the limb out from the body in the act of walking, which is always the case when the knee is quite straight. After this period, the use of shoes of the ordinary shape was resumed, and the limb was daily exercised with increasing strength and usefulness. On the 19th of October, the Doctor took his departure for the South, bearing with him the injunction to continue the support of a small splint and the aid of a crutch or cane, until he should acquire sufficient confidence in the strength of the limb to justify him in laying them aside.

I was subsequently advised of his improvement; but was resolved not to give publicity to the case until the full and entire benefit of the operation could be ascertained. The wide distance which afterwards separated us prevented me from obtaining the necessary and direct information until within a recent period. I have the pleasure now not only to afford this intelligence, but to present it in the most satisfactory manner. Having written to the doctor for the informa-

tion, and to learn from him in what manner it might be agreeable that I should refer to him as the subject of the case, the following clear, satisfactory, and well-written answer was promptly received. As the letter is full of interest in the case, I must be excused if I publish it almost entire, even though it contain some flattering sentiments for the one to whom it is addressed. That part only has been omitted which is in courtesy to my family.

Charleston, November 6th, 1837.

"My dear sir,—Your letter of the 8th October, directed to me at *Mobile*, has just reached me at this place, where I am on a visit to my parents. I received a letter from you last winter, some months after its date, and availed myself of the opportunity of a friend going to Philadelphia, and who promised me that he would see you, to send you a full communication of my situation then. I preferred this to writing by mail, as he had been with me, and could answer any particular inquiries you might make. On his return he mentioned that he had arrived in Philadelphia only a few days after you had sailed for Europe. Your letter of the 8th is the first information I have had of your return. I have the satisfaction and pleasure of saying to you now, that the operation you performed on my leg has been *completely* successful, and has more than realized my most sanguine anticipations. The small abscess, which you dressed the day before we parted at Norfolk, continued open, and threw out, from time to time, small pieces of bone, until the August after, when the last piece was discharged; the orifice then closed, and I have suffered no material inconvenience from it since. From the January previous, however, I was going about and attending to my professional business; and early in the summer, when our sickly season commenced, I was on horseback daily, riding from thirty to fifty miles a day; without more than the ordinary fatigue or inconvenience. I am at present well; the wound sound; and I feel no other inconvenince in riding or walking, than what arises from my knee joint being stiff, which was the case before you performed the operation. I walk without a stick or other aid, with the sole of the foot to the ground, and my friends tell me, with but a slight limp; and I have great pleasure in adding that the leg and foot have increased considerably in size, so as now to be nearly equal to the other. When I think of what I was, and what I am; and that to your firmness, judgment, and skill, I am indebted for the happy change, I want words to express adequately all that I feel. I will not attempt it, but believe me, my dear sir, I feel it not the less.

I shall remain here a week or two longer, and if you wish any further information on my case, do write me, and I will give it most cheerfully. After that period I cannot say where a letter would reach me. Adieu * * * * * * *

* * * * * * * *

and am, my dear sir, very sincerely, your friend,

SEAMAN DEAS.

To Dr. J. Rhea Barton.

P. S. In the statement you propose publishing of my case, I am quite willing you should refer to me in the manner you suggest, using my initials in the body, and my name at length in the note you propose appending to it."

Remarks.—In the case just recited, several difficulties of a peculiarly embarrassing nature presented themselves, as obstacles to the restoration of this disabled limb; namely, the true character of the anchylosis, the extreme angle at which the joint was fixed, the changes of structure which must have taken place during the past sixteen years, and the probable condition of the flexor muscles of the leg. As these had not been called into action since boyhood, it was questionable whether nature had contributed to their growth in proportion to the developement of the other parts of the body; or if she had, whether their contracted and inactive state for so long a time had not rendered them functionless and unyielding. It was not improbable, also, that the blood-vessels had acquired adhesions and an organic angular form at the bend of the knee. The operation was devised, and the treatment pursued, with due regard to all these circumstances.

It must be apparent that, if the tabia and femur could have been disengaged from each other at the point where the original joint had existed, this should have been the selected spot; but it was forbidden by the bulk of the condyles, the adhesion of the patella, by the extent to which the incisions would have been required, and by the disadvantageous position of the popliteal artery, as it lies embedded in the recess between the condyles of the femur.

The most eligible spot for the section of the bone is that available point which is nearest the original joint, and is at the same time free from these objections. Hence the choice which was made.

The flap elevated from the bone was composed of parts which, in a natural state of the knee-joint, it would have been improper to

have divided; but as the articulation had been annihilated, the *functional* importance of the parts appertaining to it had ceased; consequently no material disadvantage was to be apprehended from a division of them. The *shape* and *direction* of the flap were believed to be those best suited to the necessary and convenient exposure of that portion of the bone which was to be excised, and with the least possible injury to the adjacent parts. The profile of the piece of bone which was removed formed a tolerably accurate equilateral triangle. Its shape was of importance to the success of the case; and the angle at which the section should be made became a matter of calculation. If it had been cut at too acute a degree the new surfaces would have reached each other before the limb had been sufficiently extended; if at too obtuse an angle, the leg would have borne full extension without entirely closing the gap. The reunion, consequently, might have been prevented. If a single transverse section of the bone had been made, instead of the above, there would have been a necessity for great elongation of the flexor muscles of the leg and yielding of the other soft parts behind the knee, and if accomplished, there would have been left between the divided surfaces of the bone a large triangular gap or chasm, which would most probably have occasioned a false or artificial joint, without the requisite muscles to control its movements. By the excision of the wedge-like or triangular piece in front, the axis upon which the bone turned was brought so near to the muscles, or their agents, the tendons in the ham, that a slight deviation from their direction only was required, instead of an elongation of their fibres. In proportion, also, as the limb was extended, the chasm in the bone, occasioned by the removal of the piece, became diminished; and upon the restoration of the limb to the nearly straight line, the gap was closed by the approximation to contact of the sawn faces of the bone, in a manner resembling the corresponding surfaces of an oblique fracture, when accurately adjusted.

It is not the least interesting circumstance connected with the history of this case, that the subject of it was an enlightened physician —one capable of appreciating our profession as a science—and for the undeniable proof which he has afforded of his confidence in it, he fully merits our thanks, as well as all the special benefit which he has derived from the operation.

The accompanying wood-cut will serve to illustrate the above account.

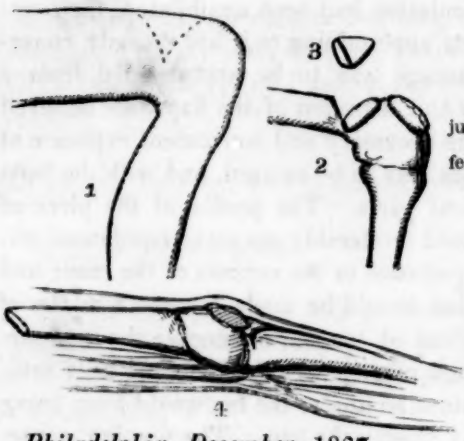


Fig. 1. Gives the situation of the flap just above the knee.
Fig. 2. Shows the operation on the femur.
Fig 3. The piece of bone removed.

Fig. 4. The manner in which the gap in the bone, as represented in Fig. 2, was closed by the overlapping of the surfaces consequent to the extension of the leg. These uniting, restored the integrity of the limb.

Philadelphia, December, 1837.

ART. V. *Case of Labour; Convulsions; Instrumental Delivery; Recovery.* By WILLIAM DENNY, M. D., of Ellicott's Mills.

In a communication, inserted in the number of this Journal for February, 1836, on puerperal convulsions, I have stated that I had seen enough of pure artificial delivery, to deter me from its repetition, as a means of arresting the disease.

Having recently been concerned in the treatment of a case of labour, in which a convulsion had supervened, and resort was had to instruments, with favourable result, I beg leave to forward a brief detail of the circumstances under which their use was adopted.

I was invited to join my neighbour, Dr. A———, at 3 o'clock, A. M., June 11th, 1837, in consultation. The patient, Mrs. J——— was young, of delicate appearance, and in her first accouchement. About the middle of the preceding week she had fallen backwards down hill, but without complaint of much injury. During the few days between this accident and the commencement of labour, œdema was stated to have occurred throughout the cellular tissue. No particular symptom was recollected, however, which could be classed as premonitory of the complication, which presented itself.

On Saturday the 10th, at noon, the membranes ruptured and the liquor amnii was discharged with but little precedent pain. In about fourteen hours, the os uteri having dilated, no rigidity of the

vaginal passage existing, the head of the fœtus presenting favourably, and having advanced considerably through the pelvis, the capacity of which, and the area of its outlet, not forbidding, and the pains having almost entirely subsided, Dr. A. administered a decoction of a scruple of secale cornutum, and repeated the dose in twenty minutes. The uterus took on powerful contractions, and the case gave promise of speedy and happy termination.

Without the manifestation of any thing which denoted convulsion, unless a somnolency, somewhat unusual, from which, however, she was easily aroused by any impression, especially by the recurrence of pains, might be considered to do so, she was suddenly agitated by violent epileptiform convulsive movements. Her pulse was found to be now oppressed and contracted; venesection was performed, under which the pulse rose, and the depletion was continued to about ℥xlviii., when the excitement of the circulation became subdued.

Any coma, which may have succeeded the fit, had passed off at my visit. There was great restlessness; the face was pale; the pupils dilated; the circulation, as expressed by the stroke of the heart and the radial pulse, was reduced, but not sunk. Some tendency to drowsiness continued, but her attention was arrested without difficulty, on speaking to her, and her intelligence appeared perfect. She complained of *constant* pain in the lower part of the back and hypogastrium, and although she now and then made muscular movements, such as frequently accompany the recurrence of pains of labour, the touch recognised no parturient effort.

The head was low in the pelvis, its vertex to the pubic arch, the face in the hollow of the sacrum, the scalp much swollen, and its most projecting point was nearly on a line with the verge of the labia majora.

After waiting some hours, we gave her ℥ij. of ergot, out of the same specimen used before, in ℈j. doses, every twenty minutes, without the slightest appreciable impression.

By 4, P. M., the bladder filled, and a cautious but persevering attempt was made to empty it with the catheter. That instrument could not gain admission, even with the aid of simultaneous repulsion of the head, which gave no more room, as it had made its turn, from the original presentation, between the right acetabulum and the left sacro-iliac synchondrosis.

An active purgative enema was ordered to be thrown into the rectum, which was returned immediately on being administered, from the occupancy of the pelvis by the presenting part of the fœtus.

Delivery by instruments seemed to be our only alternative, for the condition of the bladder was critical, and as the pulse now began to

flag, the system must succumb unless the birth could be speedily completed. We had given time for spontaneous efforts: ergot had been used to a full extent, and had failed to re-excite them: and that artificial delivery might cause return of convulsion or aggravate collapse, was a problematical danger, while that which impended seemed inevitable.

Shall we resort to the forceps and lever on the one hand, or to the perforator on the other? The former will be dangerous to the bladder, and the absence of pulsation at the fontanelles, but more especially the sensation of disruption communicated to the fingers by the bones of the cranium, seem to indicate that the fœtus has perished. Embryulcia is easier to the operator, and more safe, and not likely to be painful to the mother.

I accordingly perforated the cranium, broke down the cerebral mass, gained a point d'appui for fingers, blunt hook, or crotchet, and the only evidence of uneasiness expressed by the female, was when the os externum was at its utmost stretch.

I perceived no expiring struggle about the fœtus; the umbilical cord was flaccid and pulseless; and numerous ecchymoses on the trunk satisfied us that we had only mutilated a dead infant.

The womb contracted, as is usual, upon the delivery, and after a half hour of friction and kneading of the abdomen, my colleague, with gentleness, and without causing suffering, succeeded in removing the placenta entire. Its fœtal surface was smeared with meconium, and the tonic contraction of the womb took place so immediately and completely, that not more than ℥ij. of blood were lost.

The powers of the circulation sank somewhat, however, and great disposition to sleep followed, from which she started ever and anon, with some expressions indicative of transitory delirium. But the respiration was full, slow, and expansive. As soon as we considered all danger of hemorrhage to be passed, we gave her nutriment and stimuli, with caution. The stroke of the heart and pulse rallied, and, at bed-time, it was deemed unnecessary to administer an anodyne, as she was sleeping soundly.

I discontinued my attendance in a day or two afterwards, at which time she was doing "as well as could be expected," and, at the date of this paper, she has recovered, with the exception of some incontinence of urine, nothing having occurred, as I understand, during the getting up, traceable to the convulsion or the treatment pursued.*

* A part of this passage is, perhaps, expressed too strongly; as the loss of command over micturition, when regarded as a sequence of the constant pain complained of in opposite points of the pelvic circle, evincing some degree of impaction, may present our delay of appeal to instruments as too long protracted. The impair-

No practitioner, who has had to manage a case of puerperal convulsions will consider supererogatory any attempt to make clear the choice of remedies, or to discriminate the circumstances to which they ought to be applied. I do not profess to enlighten the one or point out the other, my object now, as in my former paper, being to elicit information from those whose names and attainments give them weight with the profession, which may lead to more exactness in the theory, as well as treatment of this formidable disease.

With regard to artificial delivery as one of our remedies, I quote the following, viz:—

"La Motte, Osborne, Leake, Hamilton, Dubois, Ashwell, Nauche, Miguel, Burns, Osianders, father and son, Dugès, and Ramsbotham, are favourable to as early delivery as possible, without violence; whilst Bland, Garthshore, Baudelocque, Hull, Gardien, Denman, and Blundell, are *against forcible dilatation of the os uteri* and attempts at delivery *in the early stage of labour.* After all, the difference is more in words than in intention; for the general object is to hasten delivery without injurious interference." (Copland's Dictionary.)

I hardly think Denman is fairly represented in this quotation; for he says, "if we reflect upon the greater number of cases of women who have been delivered under these" (he is speaking of the undilated state of the os uteri) "and *far more favourable circumstances,* the greater part of whom have soon died, their death being apparently hastened by the operation, however carefully it may have been performed, we shall be deterred from then" (i. e. in the beginning of labour) "proposing it," &c. He then, in a note, refers to an opinion *merely practical,* of Dr. Ross of St. George's Hospital, who doubted the propriety of speedy delivery in *all* cases of puerperal convulsions; "the event of many cases has since confirmed the justice of his observation, both with respect to mothers and children." (Denman.)

Professor Dewees is in favour of turning, immediately after bleeding, where the os tincæ is dilated or dilatable, and of the use of the forceps when the attack has come on at a more advanced stage of the labour, and when the head has escaped entirely out of the mouth of

ment spoken of was the effect of bruising the neck of the bladder, by the unchanging presence of the head, and not from rupture of that viscus or laceration inflicted by the instruments employed. Such was the advancement of the head, and so patulous the os externum, that neither perforator, blunt hook, nor crotchet came at all into contact with the soft parts of the mother. There occurred no sloughing of the parts damaged, though some suppuration followed. Moreover, I have this day seen the patient, and she states that she has recovered entirely of the stillicidium, without the use of any remedy. August 10th, 1837.

the uterus. (System of Midwifery, 4th ed. p. 235. By W. P. Dewees, M. D.)

It would appear, from all the authorities within my reach, unless Denman be excepted, that the course they advise to be pursued implies a wish that delivery should be completed without any definite idea of the modus operandi of such an event in the control of the affection.

Now, when we reflect that convulsion occurs sometimes before labour sets in, sometimes during that process, and sometimes after the delivery, we shall perhaps give less importance to the suppositional overstretching of the uterine nerves in the causation of the disease than seems to be in the minds of some of those who are anxious to stop short the convulsion, by placing the womb in a quiescent state, by artificial delivery; and although spontaneous efforts, coming on after convulsions have ceased, may afford a favourable prognosis, yet the recurrence of labour-pains may be among the *effects* of the beneficial agency which has removed the complication, and not a *cause* of amendment.

The grounds of the treatment adopted in the above detailed case were as follows:

However conflicting may be opinions on the minute ætiology of the disease, that variety of epileptic puerperal convulsions which may be called entonic, is admitted by all to be marked by determination of blood to the brain. The entonic character consists, in part at least, of vascular excitement, perhaps based upon or superadded to a plethoric condition of the system. If, in all cases of pregnancy or labour, more or less compression is made upon the descending current of the circulation,† this must vary greatly according to circumstances; and cannot be "pretty uniform in every pregnancy," as remarked by Dr. Dewees. In a plethoric state, and under vascular excitement, a certain amount of obstruction must exist in the descending current, and regurgitation to the superior parts of the body, and to the head in particular, must be the consequence, or in other words, determination to the brain must be established.

Amidst these circumstances convulsion occurs; and among the disturbances of function which follow may be suspension of the labour at any stage of its progress.

Depletion is practiced to such a reduction of the vascular fulness, and such a control of the excitement, as are necessary to correct the determination to the brain, and *no more;* if I have contended aright in my former communication, and if the following language upon

† Baudelocque, referred to in Dewees's Essay, Am. Med. Rec. vol. i. p. 312.

another subject can be applied to that under consideration, "To take an ounce" (of blood) "more than the subdual" (of the affection) "requires, is injurious—to take an ounce less is still more pernicious —to take the quantity necessary to the object, and no more, is to use the lancet—that powerful instrument, so dangerous in rash hands, and no less dangerous in weak—with the discernment and decision of a master."*

We subdue the excitement, the pelvic obstacle remaining. Now, to resort immediately to artificial delivery, will be to remove the compression on the descending current of the circulation, and the effects will be analogous to those of ultra depletion, among which may occur syncope, convulsion, or the coma of collapse. These consequences have sometimes ensued from a too sudden and speedy delivery by natural efforts. (Denman.) They will not be less likely to follow that which is effected by means which are artificial.

In the case before us, this happy medium of depletion had been observed by my able colleague. We then suffered the system to accommodate itself to the loss of blood, before we prescribed secale cornutum, and as that agent failed to recall uterine contraction, we resorted to instrumental aid, not to prevent convulsion, (for as that had not continued to recur, and from the time which had elapsed, viz. fifteen hours, and the state of the pulse, was not likely to do so, we looked upon that complication of the case to be subdued,) but for certain local and general phenomena which presented themselves arising from the protraction of the labour, with but a remote dependence on, or reference to the convulsion.

Ellicott's Mills, July 3, 1837.

ART. VI. *Report of a Trial for Murder, by the Administration of Oil of Savine, for the purpose of procuring Abortion.* By CHARLES A. LEE, M. D., New York.

This trial came on before the Supreme Court of Massachusetts at the September term, 1835; holden at Lenox, Chief Justice Stow presiding, assisted by S. Putnam and S. L. Wilde, Esqrs., Puisne Judges. The chief count in the indictment charged John Eldridge, a substan-

* Southwood Smith on Fever.

If the sentence quoted be applicable to inflammation of the brain and its envelopes, a fortiori, it may be considered just, where the state of the cerebral circulation is only that of a disturbed balance or even congestion.

tial farmer of Hancock, Berkshire county, with procuring, and causing to be administered to Lucy Livingston, an ounce of the oil of savine, for the purpose of producing abortion, but which resulted in her death. As there were some points of considerable interest connected with this important trial, which for many days powerfully excited the feelings and sympathies of a large and respectable assemblage, it is believed that a condensed report, will not prove unacceptable to the profession generally. The following report is an abstract from notes taken during my detention as a witness.

Testimony on behalf of the government.—Elijah Graves, M. D., was sworn. "Lives eight miles from the prisoner. About two months before the death of Mrs. Livingston, Mr. Eldridge applied to me for medicine for her; said he wanted something to restore the menstrual evacuations; I asked her age, and sent a dose of iron and rhubarb; a fortnight afterwards he came again and said the medicine had had no effect, and wanted something more powerful; no allusions were made to her being pregnant. On the 26th of June, Mr. E. visited me the third time, and said Mrs. L. requested me to see her, if I was in Hancock; which I did on the day following. I found her labouring under uterine hemorrhage; she told me she was pregnant; five or six months gone; I should have judged also from her appearance that such was the case. The hemorrhage was not alarming; but I thought there was danger of abortion, and told her so. From her house I went to Eldridge's and dined there; intimated her situation to him; but did not converse much about it. The next time I saw Mrs. L. was on the Monday evening following, in Stephentown. I found her with considerable fever and pain, similar to labour pains; some uterine hemorrhage; but not very great. Symptoms indicated abortion; prescribed rest and some cathartic medicine. She came there on foot, a distance of four miles. On Tuesday, the next day, I visited her and found the fever abated; made an examination per vaginam; *discovered that there was a fœtus; have no doubt on this point.* I did not see her again till the Thursday following. The fœtus had then come away, and she had no appearance of pregnancy. The placenta remained in the uterus; I thought it not best to attempt to remove it. I asked her if the child was gone; she said it was. Several days afterwards I visited her at her own house, in Hancock; she had had a very poor turn; severe hemorrhage; part of placenta had come away; I continued to visit her daily down to the day before she died. On Friday I considered her very dangerously ill, and told her so; desired a consultation, and Dr. Tyler was sent for. He also considered her case alarming. She died on the Tuesday following.

Cross-examined.—At one of my visits saw a phial, containing about a teaspoonful of some liquid; was not acquainted with it; have used savine in substance, but not the oil. Oil of juniper is a powerful emenagogue, and considered by some a specific in procuring abortion. When the examination was made, I found the head of the child presenting; reached the placenta or a portion of it; *could not swear positively it was a fœtus;* saw nothing of fœtus, umbilical cord, placenta, or membranes; *feeling is an uncertain test,* though one of the best. *Mrs. L. got very wet, a short time before she was taken sick, by walking a*

long distance through the grass; such exposure would be highly dangerous to one in her situation; she was threatened with abortion previously, and this was calculated to increase the danger. Abortion is not necessarily fatal; but often dangerous; have been in practice twenty years; have never known a death from this cause; think she would have recovered, had she followed my direction. Danger of abortion depends on the cause."

Miss Harriet Miller, sworn.—"Mrs. L.'s husband had been absent about a year. On the Friday morning before her death, Mrs. L. said, if she thought she could not live, she would send for some one and *tell the whole story*. Made no reply, when her sister told her, she could not live; at this time was in an ague fit; occasionally her mind wandered; asked her *if she was willing to be sworn;* was not disposed to say much about it. Saw no quicksilver, steel-dust, or southern-wood about the house."

Joseph Belcher, sworn.—"Am son of the accused by her first husband. On the Friday before her death, thought her very dangerous; if no better the next morning, she wanted me to go down and ask Esquire Gardner to come up. Did not ask her to make a disclosure that night. I told her she was very sick, and did not think she could stand it long. I had then no means of knowing what she wanted of Mr. Gardner. The next morning I went for Mr. Gardner, and requested him to see my mother; but he seemed disinclined to go; and directed me to go for Esquire Hazard. The result was, that Mr. Gardner and his brother, and Mr. Hazard, came together."

Cross-examined.—"Mother was in the west room; spoke in her usual tone of voice; and not as if angry. Did not urge his mother to make any disclosure; and did not know that she had been told, that unless she made a disclosure, the family would be broken up."

Here several witnesses were called to know the condition of Mrs. L. at the time she gave her dying testimony; but as there was considerable discrepancy in their statements, they are, for the most part, omitted. The most that can be said of extra-professional evidence on such a point, is that it is a mere expression of opinion, generally more or less biased, in relation to a matter of which the witnesses are not qualified to judge; and so ought not to be considered as evidence.

Miss Olive Eldridge, sworn.—"Knew Mrs. L. slightly; watched with her on Friday night before she died; appeared comfortable through the night; complained of no pain; had no chill; raised herself in bed when medicine or drink was administered."

Mr. Gardner testified, "that at the time Mrs. L. gave her dying testimony, she was *very sick*, but not so sick as he expected to find her, from what he had heard; spoke in a voice loud enough to be heard about the room."

Dr. Graves having been recalled, testified "that he believed Mrs. L. to have laboured under puerperal fever; he prescribed blisters, fomentations, &c. to the abdomen; the deceased had rigors followed by fever; during the paroxysm raved incoherently; and when the fever was off appeared much exhausted. During the morning of her death she lay in a stupid state; answered no questions, and did not appear to be sensible."

Here a long interlocutory debate occurred as to the admissibility of

the testimony of the deceased; the counsel on the one side claiming her confession as dying declarations, the other contending that it should be set aside, as not coming clearly under this character. It was however decided at last that it should be admitted.

Dying Declaration. Rodman Hazard, Esq., sworn.—"Asked Mrs. L. if she had sent for us to come there; said she had, in order to give us an account of her situation. I asked her if some evil-minded person had not been putting her up to accuse some innocent man; if so, she ought to avoid the commission of such a crime. She raised her hands, and said she would tell the whole truth, if it was her dying words; she said there never had been but one man, who had ever attempted to make her accuse any but the right one; that was Mr. J. Eldridge; he told her that she must keep it secret; for if it came out, both would have to go to the State's Prison; told her to lay it to Jake, or Jacob Livingston; said she, 'I shan't do that, for I have not seen him this year and a half.' She said, that the child was begotten in January or February preceding; that on a certain Saturday, Mr. E. brought a phial of medicine, and told her to take a teaspoonful every morning; the effect of which would be to destroy the child, and not to injure her; said she took on the next morning, Saturday, one teaspoonful; and on Sunday one; on Monday she felt that she could not take it; poured it into water and it would not mix; do not recollect whether she said she took it or not. On that morning I got out, and went across the lots to Daniel Crocker's; there the child was born; witness asked her whether she knew what it was to be quick with child; said she did, and had felt a movement of the child long before that time; was with the deceased an hour or more.

Cross-examined.—"The Saturday alluded to, as the day when the medicine was brought, was the 21st June, about three weeks before witness saw her. She did not state where the medicine was; I cautioned her against accusing any one before she made the statement, &c."

John Gardner, Esq. sworn.—Made similar statement to the above—"The deceased said that Mr. E. brought the medicine, and told her to take a teaspoonful every morning; she took it as directed; said it was the worst medicine she ever took, thought it would take the skin from her mouth and throat; the next morning took the same dose with similar effect; E. told her it would kill the child. She was taken unwell with flooding on Monday morning, set out the same day for her brother's, in Stephentown; went across lots through the grass, which was very wet with rain; thinks she waded a creek; stopped at Mr. Carpenter's, about two miles and a half from where she started to dry her feet, then went on till she reached her brother's; was taken quite unwell immediately; sent for Dr. Graves; the fœtus was born after she had been there a few days; no doctor was with her; Polly, wife of Mr. Crocker, took the child."

The testimony adduced to prove Mr. E.'s intimacy with the diseased was vague and unsatisfactory, the following will suffice.

J. Belcher, sworn.—"Last of January or the 1st Feb., Mr. E. called at mother's early in the morning, about sunrise; mother was in the east room, she rose and went into the west room, and Mr. E. followed her; they were there alone ten minutes or so—I got up and went to the window, saw Mr. E. a few rods from the house, was in a fast walk, between running and walking.

looked back two or three times; was at the house every day almost, sometimes three times a day; had no particular business there."

Cross-examined.—"No bed in the kitchen or east room; never had much difficulty with Mr. E."

Dr. Hubbard, sworn.—"Knows the prisoner; the first time I ever saw the prisoner was in my shop in Pittsfield. He asked if I had *oil of savine*, said he wanted some for a physician in Stephentown; I let him have it; don't recollect how much, but think it was an ounce, in a phial. Enquiry was made of me by Mr. Langton whether I had any oil of savine, and also whether I had sold any lately. I told him I had, and was requested to go to Hancock and see if I saw the man to whom I sold the savine. I went and enquired for butter and cheese; was directed to go to Mr. Eldridge's. I did so; found Mr. E., and he was not the man to whom I sold the savine. I knew that the man's name to whom I sold the medicine was Eldridge, but knew not that there was any other man of that name in the town. As I was going to another place I saw a man in an alley leading a span of horses, and I thought he was the man who had purchased the savine; I turned back and talked with him on the subject of butter and cheese—I believe him to have been the man; may possibly be mistaken, but have no reasonable doubt. Afterwards saw him in the drug store I formerly owned; he spoke to Esq. Briggs, and asked him how he did; Mr. B. extended his hand very coldly, and Mr. E. said, 'don't you recollect me?' and Mr. B. said 'I think I do,'—afterwards I was walking on Mr. Russell's stoop, he, (Mr. E.) asked me 'if I was Dr. Hubbard?' my reply was 'no,' but on looking him in the face, I replied 'yes, I know you very well'—he said, 'Esq. Briggs and he wanted to see me,' I accordingly had an interview with them. He again inquired if 'I had ever seen him before?' I said 'yes;' he replied that 'he had never seen me before." Returned from Ohio to Pittsfield the 20th June, 1834; was in my store the same day, Friday; sold the savine that day or the next morning; never have used the *oil of savine;* it is a powerful medicine, and acts specifically on the uterine organs; is dangerous in large doses—ordinary dose from three to ten drops; common sized teaspoonful contains sixty drops or ʒj. Savine is not often asked for. When Mr. E. bought it he asked me 'what do you doctors do with this medicine?' I answered, 'it is a tonic or stimulant.' He said 'you doctors can do what you choose, but we common people don't know any thing about it.' "

Cross-examined.—"A teaspoonful of *oil of savine* would not probably kill an adult; it might; it would certainly produce an inflammation of the stomach. Soon after Mr. E. was at my shop, another person enquired for the same article."

Here the testimony on the part of the commonwealth was closed. On behalf of the prisoner,

Erastus Cushing, M. D., was called and sworn.—"I am a physician; reside in Lanesborough—I made a *post-mortem* examination of the body of Mrs. L. the day after her death, in presence of *Drs. Tyler and Palmer*, of Lanesborough, and *Dr. Thomas*, of Hancock. *Dr. Tyler* was the oldest physician present, but is now sick. The following notes of the autopsy were kindly furnished

me by Dr. Thomas: 'July 16th, 1834. Called to examine the body of Mrs. Lucy Livingston, æt. thirty-eight, who died July 15th, at 7 o'clock, P. M. Found upon the body no external marks of violence—surface pale; no discoloration except a few small purple spots on the posterior parts of the sides of the neck. The breasts were enlarged apparently, nipples surrounded with a dark areola, somewhat plump, and from them limpid, whitish fluid was passed. The abdomen appeared to have been distended, and previous to death to have been contracting or resuming its natural size, as it exhibited the transverse folds and wrinkles incident to such a state of things. The abdomen was opened by an incision extending from the sternum to the pubis, and a transverse incision extending from near the umbilicus to the loins. The first appearance, after turning back the integuments, was nearly that of health—further examination shewed the *liver* a little inflamed and *gall bladder* filled with bile; *bladder* empty and more vascular than natural; *mesentery*, *colon*, and *rectum*, and some other portions of the intestines contiguous to the uterus and its appendages highly inflamed, and vascular—*uterus* enlarged to four or five times its natural size, so that most of the body of it was above the brim of the pelvis; it was apparently between six and seven inches long, and from four to five inches broad. The *os tincæ* was dilated, and distended, as we judged, to from one half to an inch and three-fourths in breadth. The *cervix uteri* was nearly obliterated; the whole cavity of the uterus adjudged to be capable of containing nearly a pint. No lesions, ulcerations, or disorganizations of structure were discoverable on any part of it. There was found in the superior posterior portion of the cavity of the uterus, a fibrous substance, somewhat circular in its form, flat, about one-fourth of an inch thick, indurated and fissured, of a florid appearance, covered with a greenish, muco-purulent matter intermixed with small coagula and grumous blood. The walls of the uterus were about three-quarters of an inch thick; the blood-vessels much developed, and very apparent traces of a most intense inflammation of its lining mucous membrane were present. Both fallopian tubes were elongated and enlarged; the cavities dilated to the size of a large goose quill, filled with grumous blood, and muco-purulent matter; their mucous membrane disorganized, and exhibiting traces of a highly inflammatory action and gangrene."

"The *os pubis* was removed, and the urethra, vagina, and rectum exposed. Throughout the whole length of the vagina, and lying between that and the rectum and the right ramus of the ischium, was found a large deposition of purulent matter, intermixed with flakes of coagulated lymph. Very considerable patches of gangrenous disorganized structure appeared in the cellular substance.

"*Vagina* was two inches in diameter—flaccid, and five or six inches in length. *Os externum* flaccid, flabby, and very dilatable. All the organs of generation throughout exhibited indubitable traces of high inflammation, and consequent gangrene and disorganization." (P. H. Thomas, M. D., Hancock, Mass.)

Dr. Cushing, (*continued*)—"Thinks that inflammation of the uterus was the

cause of death. The appearances were such, with the exception of the inflammatory signs, as we find in cases of abortion.

Cross-examined.—"Have read reports of cases where something resembling placenta had been expelled. If the *post-mortem* examination had been nearer the supposed delivery, could have pronounced with more certainty about this body. There is a morbid growth in the uterus, bearing some resemblance to placenta: this bore some resemblance to that; might have been that; have had cases of abortion; but a very small portion prove mortal. Such a course as Mrs. L. pursued would endanger the patient much. I should fear the consequences of riding four or five miles after abortion in a common lumber wagon, as she did. I think Mrs. L. came to her death by the diseased condition of the uterus. I know nothing of savine."

E. M. Bissell, Esq., sworn.—"Kept a drug store in Pittsfield. Early in July, within a day or two of the third, when I got home, a man came to the store, and asked the boy for oil of savine: I told him we had not got it; said he wanted it for a doctor in Stephentown; told him he would probably find it at Dr. Hubbard's, whither I directed him to go; had a heavy whip, and was a tall, thin man, thinner than Mr. Eldridge. I know Mr. E. of Hancock, and he was not the man who wanted the savine."

Mrs. Cracker, sworn.—"Am sister-in-law of deceased; saw her when she came from Hancock; was wet to her hips; feet and legs cold. Came on Monday, and staid nine days; said she came on foot across the fields, and waded the river; it was seven miles the way she went; was then flooding and continued so all the time she continued at her house; kept the bed nearly all the time. Peter carried her home in a common wagon; the day was cold, wet, and raw; she lived a fortnight afterwards; don't know that she was delivered of a child while there. I saw her at Hancock before she died. I asked her how she came to do as she had done. She said she did it to prevent her children from suffering, as they had threatened to leave her; said they had lied about her; told me I might go home, and when she got well, she would come down and tell me how they had abused her. I thought her deranged at the time. When at my house, something of a congealed nature came from her; it was wrapped up in a cloth and carried out of doors; saw the cloth."

By other witnesses it was proved that the deceased took a decoction of Southern wood, iron dust, &c., previous to her taking the *oil of savine;* she was also seen to jump from a high table to the floor several times while white-washing, and when told that it might injure her, she replied that she did not care if she did kill herself, she might as well be dead as alive.

Dr. P. H. Thomas, sworn. (Question.) "Was the conduct of Mrs. L., at the time she went from Hancock to Stephentown hazardous to her life? *Ans.* "I think it was." *Q.* "Was the exposure a sufficient cause to produce the appearances found on dissection?" *Ans.* "I believe it to have been amply sufficient." *Q.* "*Was the oil of savine sufficient to cause her death without the exposure.*" (*By the Court. All that is necessary on the part of the Government is, to show that the*

act of the prisoner concurred with other causes to occasion the death of the deceased. On the other hand, the counsel for the prisoner contended *that if sufficient causes for death could be found, exclusive of the agency of the defendant, he ought to be acquitted*, and quoted a paper by the late Professor Ashman, in the 27th No. of the American Jurist, for July, 1835, to the same point.) *Ans.* "In the situation Mrs. L. was in, the exposure to which she was subjected might have led to serious consequences, as sometimes slight causes lead to abortion, while at others they will produce no effect." *Q.* "Would you have expected to find the same appearances that you did, had death been caused by the exposure?" *Ans.* "I never knew a case of abortion prove fatal. Savine is very uncertain as an abortive. Most writers, especially Denman and Baudelocque, represent abortion as not dangerous. The first operation of the oil of savine would be an inflammation of the mucous membrane of the stomach and bowels. No examination was made of these organs. There were no external marks of inflammation. No emenagogues operate specifically on the uterus." *Q.* (*By the Court.*) "In common cases of abortion, would you expect to find a highly inflamed condition of the uterus." *Ans.* "I should not; if it proved fatal it would be from hemorrhage or inflammation and gangrene. In ordinary cases of abortion, the result would be generally hemorrhage; a patient would not be able to live after gangrene had taken place. If a patient recovers from abortion, it does not follow that there has been no inflammation. Any cause which may tend to increase inflammatory action, would be likely, in the ordinary course of things, to produce inflammation of the uterus. Some articles are supposed to have more action on the uterus than on any other part, and that is the case with oil of savine."

Oliver Peck, M. D., sworn. *Question.* "Suppose a woman in a state of pregnancy, should get wet, and walk several miles, might not this be a sufficient cause of abortion and death?" *Ans.* "It might." *Q.* "It seems she had a flooding on Friday, and went away on Monday; under these circumstances, would not such conduct be highly dangerous?" *Ans.* "It would." *Q.* "And would the appearances have been such as were found, had such been the cause?" *Ans.* "It would; savine is an uncertain emenagogue." (*By the Court.*) "*If abortion is begun under circumstances of excitement of the system, would it be likely to go on?*" *Ans.* "It would." *Q.* "*And would oil of savine produce such a state of the system?*" *Ans.* From six to eight drops would be an ordinary dose. Two teaspoonsful would be twenty doses." *Q. Would two teaspoonsful of oil of savine have destroyed this woman before it had acted on the uterus?*" *Ans.* "It would."

Testimony was now introduced for both sides, to prove the character of the deceased for veracity. It appeared by the testimony, that she was a woman of a very doubtful, if not, disreputable character. Whether this circumstance should have had sufficient weight, as to set aside her dying declaration, will be the subject of some remarks at the conclusion of this report.

On behalf of the prisoner, Mr. Byington of Stockbridge, opened the defence. In substance, he remarked as follows:

"As the prisoner is advanced in life, his passions are subdued and his family ties increased. The farmers of Berkshire are not often in that prisoner's box. If what has been alleged be true, there was no design to murder the deceased; but it is a maxim in law, that if in doing an unlawful act, death ensues, it is murder. It must be proved that the oil of savine had an effect in causing death, which has not been done; now, if you can refer the death of the deceased to evident causes, you must suppose them to have been instrumental in causing the result, in preference to those of other kinds, and of a more uncertain nature. Dr. Peck testified, that jolting, the application of cold, exposure to wet, fatigue, &c., were more powerful in causing abortion than savine. The motive assigned in this case is criminal intercourse; but his honour, the chief justice, has said, that in cases of circumstantial evidence, the incidents must be clearly proved. Applied to this case, they must prove that the prisoner gave the oil of savine, and not infer it from the fact of an abortion having taken place. Neither has it been proved that he had criminal intercourse with her, nor any evidence of his having been the procuring cause of her taking the drug, or of having used persuasion to effect it. Did he give the oil of savine? did he persuade her to take it? There is no evidence that he did, except that of Dr. Hubbard, and none but his, to prove that he bought the article. The testimony of a person *in extremis*, is said to be good in law, so it is; but is it so in fact? The testimony shows her to have been an infamous character in regard to truth. Had she no motive to tell aught but the truth? Her motive doubtless was, by telling a falsehood, to lay the blame of her situation on another, and to shield herself and family from the disgrace of her conduct, by showing that another instigated her to commit the act. Did she make the declaration under the consciousness of impending death? Now let us look at her testimony in connexion with other facts. The witnesses disagree as to the time when the prisoner is said to have bought the savine; this point, therefore, is uncertain; and, according to the rule of the court as to incidents, goes for the prisoner. Now, the testimony as to indentity is often false. (Cited a case from Philips on Evidence, where false swearing, as to identity, caused the execution of the prisoner, who was afterwards proved to be innocent.) The abortion had commenced before the medicine had arrived there. Suppose the oil of savine was given, it is for the government to show that it had any effect in producing the abortion. Where there are many causes given, it is for you to assign such as are compatible with innocence."

Hon. Mr. Briggs for the prisoner. "Gentlemen of the Jury, the prisoner at the bar is charged with being accessary before the fact, and also as principal; it is the duty of government, beyond doubt, to prove the case clearly: if they have the case involved in clouds more or less dense, you must not hazard the life of the prisoner on doubts. It is a humane maxim, that it is better that ninety-nine guilty should escape punishment, than that one innocent man should suffer.

"The counsel for the government allege that the prisoner had criminal intercourse with Lucy Livingston, and that he procured oil of savine to get rid of the consequences of the act. The proofs of criminal intercourse are extremely uncertain. It is impossible that a man, in broad day-light, could have commit-

ted the act with which he is charged, with the doors unfastened, and all the means of access open. He had been in the habit of coming to the house, it is true, in a friendly manner, but in the bed where they say the deed was done were two little daughters; there were many children in the family and about the house constantly. Is it not as likely that Eldridge was there for an honest as a dishonest purpose? But he applied to Dr. Graves for medicine, and told Dr. G. the symptoms: was there any harm in this? No. He exhibited to Dr. G. no appearances that excited his suspicions; he expressed to Dr. G. no apprehension. When Dr. G. first saw her she flooded; her abortion had commenced. Esq. Hazard says that the deceased stated in her dying testimony that the prisoner told her the oil of savine would kill the child, but would not injure her, showing that he had no design against her life. *Is second hand testimony like that of dying persons safe?* No; and in this case, moreover, there is discrepancy in the statement. This woman was all the while in a state of delirium, or stupor, and therefore her statements are not safe. The woman stands as a partner to the crime, a *felo de se*—her testimony, if she could be here living, would not be taken, as being tainted with the crime of self-destruction. *A woman who could murder her own infant in her womb is now to take away the life of an innocent man by her testimony.* Dr. Hubbard was mistaken as to time. Dr. Graves told her before she took the oil of savine, if she ever took any, she would have an abortion. If abortion had taken place, why did she want a new medicine? The testimony as to the teacup is discrepant; her character for truth was bad, and she is liable to the same scrutiny as if living. The evidence of her good character does not come from persons living in the vicinity, and of the same rank in life, and is therefore uncertain. Her neighbours say it was bad; will you convict on her testimony. Dr. Hubbard says that on the 20th or 21st June, he sold oil of savine to Eldridge. He is mistaken. It is not an easy matter to identify strangers. Mr. Bissel says that on the 3d, 4th, and 5th July, a man wanted some oil of savine for a doctor in Stephentown; were there then two cases of selling oil of savine in Pittsfield about the same time? Mr. B. says that on one of those days he sent a man to Dr. Hubbard's, who had applied to him for oil of savine, as he had none himself, and that the man he sent was not John Eldridge, the prisoner, whom he knows well, and swears positively. We found by Palmer and Miss Eldridge, that the prisoner was sick at the time, and went to bed at night, and if he had got up immediately and gone to Pittsfield he could not have got there at the time sworn to, (it being ten or twelve miles) to get the medicine; Hubbard's shop must have been shut up. If you have a reasonable doubt as to Hubbard's testimony, it goes for the prisoner; you must lay it out of the case. No, J. Eldridge did not go to Pittsfield; did not get the medicine; did not give it or cause it to be given to the deceased."

Attorney General Austin for the the commonwealth.—"You, the jury, have not to execute the criminal; your duties relate only to establishing *one fact*; that is, whether the prisoner is guilty or not," (explained the law relative to the execution of prisoners and proceeded,) "you need not fear, therefore, that the ghost of the prisoner will rise up and appear to you; you may therefore safely pronounce him guilty, if you think so. We do not intend to charge him with

design in this case; and it is not so charged in the indictment; nor is it charged whether she was pregnant or not; nor whether an abortion was procured or not. The case is simply this. Believing that she was pregnant, he gave oil of savine, a deleterious drug, intending to bring on abortion, and an inflammation of the womb was produced, and she died. This is murder by the law; you are told to doubt the purity and the majesty of the law; this is wrong, totally so. If it is true that he gave a drug, intending to procure abortion and without intending to kill, and inflammation of the womb ensued and caused death, he is guilty of murder. This is a narrow compass of facts and law. *If the medicine contributed to produce the effect, the case is made out.* The law is to be settled by the court, whether this is murder or not, and it is proved by the dying declarations of the woman as given to Hazard and Gardner. I will now quote their testimony; testimony given in prospect of death has the solemnity of oaths, for that situation brings to view the solemnities of another world, and oaths given on the stand have the same effect of turning the attention to an hereafter. Dying testimony has the effect of preventing bad men from taking advantage of death. Her testimony is corroborated by the intimacy existing between the parties, and the freedom of frequent visits to her bed-chamber early in the morning. He goes to Dr. Graves, tells him she is sick; tells him of her having a flowing, *and that she told him what ailed her.* Now females don't communicate such particulars to men *usually;* it shows intimacy, I say, and goes to corroborate her testimony. She says he brought the article to her; and Hubbard sold it to somebody; does it follow because mistakes have been committed that you must believe *nobody?* It was said that another man went to Bissel's to get oil of savine. What of that? Suppose two men bought oil of savine, has the one purchase any thing to do here? Why do they not produce the Doctor in Stephentown who sent the man to Pittsfield to buy oil of savine? The man unlike Eldridge went to Bissel's, the man like Eldridge went to Hubbard's.

"Dr. Graves saw her at some time, if not on the 27th June; it is immaterial when this medicine was given; *it is not necessary to prove that it actually produced abortion; the intention is the crime, no matter what effects the article had on the woman;* he knew she was pregnant, supposed oil of savine would produce or accelerate an abortion; where he got his knowledge of the supposed effects of oil of savine is no matter; his acts show that he supposed the natural effects of oil of savine is to produce abortion; so say the books; also, that abortion is dangerous to the mother. Did she die in the manner stated in the indictment or not? *No matter whether she died of abortion or not;* no matter, if the action of oil of savine was accelerated by other causes," &c.

Judge Putnam charged the Jury.—After stating the several counts in the indictment, the Judge proceeded in substance to remark. "The government propose to show that the deceased was pregnant, and was desirous of procuring abortion, and that she took oil of savine by the procurement and advice of the prisoner, resulting in inflammation and gangrene of the uterus. The government must make out the charge.

"The oil of savine is an acrid poison, and used for the purpose of causing abortion; it is not, however, always certain of producing that effect. The effect

of oil of savine is in the stomach, and *it would tend to produce effects such as here discovered!* It would be likely, I say, to produce that effect, i. e. inflammation of the womb. No individual has a right by blows or potions to put human life in jeopardy. The party who endeavours to procure abortion without endangering life is, notwithstanding, answerable if death ensues. If, however, the prisoner advised the deceased to take the oil of savine, and yet she subsequently exposed herself to wet, cold, and fatigue, adequate to cause the effects that followed; and if it appear clearly to your minds that such exposure caused her death, and *the savine did not in any degree* contribute to it, then it is your duty to clear the prisoner. If the poison contributed to the death, the prisoner is guilty; if it did not, he is innocent. Still, if the exposure would be more likely to produce death, but if the poison contributed to that effect, it would be murder." (Quoted Lord Hale: "If a man give a blow, not mortal, yet the person receiving it dies in 366 days, it is murder.") "If the poison alone would not have proved fatal, yet, conjointly with the exposure, it had that effect, then is the prisoner guilty. It is only necessary that it should have co-operated with other causes. The character of the witness is to be weighed by the jury. Fourteen witnesses say her reputation is bad. A *particeps criminis* is in law a witness; it is lawful evidence. A bad person may tell the truth: you must, however, weigh it. The government produce eight witnesses who say her character is good. Any person may have heard things said against *any body* and *every body*. There was great familiarity between them, as testified. The defendant's council say there was no motive; but she stated in her dying declarations there was one: for the defendant told her, if it was disclosed, they would both go to the State's Prison. He asked Dr. Graves to go and see her; how should he know her circumstances as to menstrual discharge, &c.? This also shows familiarity. Did the defendant procure the oil of savine? According to Dr. Hubbard, he procured the article of him in Pittsfield. Is Dr. H. to be credited or not in this matter? Dr. H. went to Hancock to ascertain to whom he sold the article, and ascertained Eldridge to be the man. Afterwards, an experiment was tried on Dr. H. at Pittsfield. E. wore at this time a fur cap. The experiment seems unsatisfactory: the cap he wore altered his appearance, no doubt; on the other hand, it is said to be proved that he was sick at home at that time. His daughter testifies to this, and also that the day was Friday; but you must weigh the inducements which would lead a child to testify in behalf of her father. Could she certainly recollect the precise day; if she is right, Dr. H. is mistaken. She don't say he was so sick as to be confined to the house.

"It is proved that the deceased was pregnant, and that the defendant told her to lay it to Jake; she said she would not, he having been absent more than a year.

"Gentlemen, it is your duty to administer justice in mercy and in truth: and may God direct you to a right decision."

After an hour's absence, the jury returned a verdict of NOT GUILTY.

Remarks.—There are some considerations suggested by a history of this trial, which are perhaps worthy the attention of medical men.

In many particulars, it bears a striking resemblance to the case of Miss Burns, for whose murder, Mr. *Charles Angus*, of Liverpool, was tried in 1808, and which excited a great degree of public attention. There is much reason to believe that savine was the article made use of in her case, in conjunction with mechanical means, to destroy the fœtus; as it was proved on the trial that a bottle which had contained the oil of savine was found in the bed-room of the prisoner, and it was afterwards proved that he purchased ℥iv. of the article of an apothecary. The first symptoms of which she complained, was pain in the bowels and great thirst, which was followed by vomiting of a black matter, and afterwards of a green matter. The thirst increased, and she had great difficulty in passing her urine. The vomiting continued all that day, and was succeeded by violent purging, which continued till her death. In a late lecture on medical jurisprudence, by Professor A. T. Thomson, reported in the Lancet, the lecturer, after stating that the appearances on dissection, in the case of Miss Burns, indicated severe inflammation of the mucous membrane of the stomach, expresses his belief that *savine* was partly the cause of her death, and remarks:

"At the same time, the medical evidence was not creditable to the doctors; the dissection was performed in the most slovenly manner: neither was the state of the mouth and fauces examined. The greatest objection to the idea that savine oil was the poison, is the absence of the strong odour of the savine. The objections thrown out by Dr. Carson, which obtained the acquittal of the prisoner, mark more strongly than I can express, the necessity of a knowledge of the medical matter connected with such legal investigations for gentlemen of the law. The counsel on the part of the crown should have known that vegetable poisons cannot be detected by any tests of a chemical nature, and that the medical testimony, as to the symptoms and the appearances of the body after death, must aid other circumstantial evidence to obtain the ends of justice. In the case of Miss Burns, the pathological and anatomical facts are so striking and satisfactory, in addition to the finding of the bottle marked *savine oil*, that the proof leaves little doubt on the mind. It is true that very large doses of this oil have been taken: *even to the extent of a hundred drops;* as in a case related by Foderé, when it was taken in that quantity for twenty days, to cause abortion, and yet the female carried the child to the full time. In another case also, related by the same author, where the powder was taken, vomiting, hiccough, heat in the lower belly, and fever of a fortnight's duration, were induced, and yet the female was not delivered until the full time. But in hearing these cases, you must recollect there is nothing so variable in strength as oils of this description, which are very frequently weakened by the addition of alcohol or bland and fixed oil; and in Miss Burns' case, the abortion was not left solely to the action of the drug, which was, nevertheless, the probable cause of the death of the mother."

In the case of Mrs. Livingston, there is good reason to believe that she took no genuine oil of savine at all. None was ever found in her house which was identified; and if what remained in the phial, which one of the witnesses stated to have been about a tea-spoonful, was the remains of what Dr. Hubbard said he sold to Mr. Eldridge, then it is very evident that Dr. H. sold for savine oil what was something else. Although Mrs. L. took a tea-spoonful at a time, for at least three mornings in succession, there is no evidence that it caused pain in the stomach, vomiting, purging, or any other symptom than a bad taste in the mouth, which certainly could not have happened, had it been oil of savine. Since this trial occurred, an unfortunate female of this city died in consequence of taking one drachm of this article, for the purpose of causing abortion. Besides, on the morning of the third day after she commenced taking the medicine, Mrs. L. walked seven miles across the fields, wading a creek, &c., and this after she had commenced flooding, which it is not at all probable she could have done after taking four or five or more drachms of this acrid oil. It should, moreover, be recollected, that nothing is more common than to find a spurious article in the shops of the apothecaries, especially in the country, labelled *oil of savine*, which is nothing more than spirits of turpentine, or alcohol, strongly tinctured with savine; and such may have been the article Mrs. L. took. It is certainly a matter of regret that the physicians did not examine the state of the mucous membrane of the stomach and bowels, as it must have thrown some light on the question whether the deceased had taken any thing of a very acrid nature: as it is, we are left to surmise their pathological condition from other symptoms. The immediate cause of death was unquestionably the inflammation of the uterus, brought on by exposure; and if the articles she took for procuring abortion had any effect in causing the result, it doubtless was so slight as not to be taken into account. "*De non apparentibus et non existentibus eadem est ratio.*" The doctrine advanced by the Attorney General "that it was not necessary to prove that the savine caused the abortion, but that the intention constituted the crime," seems to us a monstrous one. Was the prisoner to be hung for giving an article to produce an effect *which it did not produce?* It must be admitted, that if an article is administered to bring on abortion, and death ensues, the accomplice is as much chargeable with the death of the mother as with the destruction of the fœtus; the ignorance of the fact that all abortives endanger the life of the mother equally with that of her child, is no excuse in law. The opinion of Judge Putnam, too, deserves some notice. He stated to the Jury that the use of savine

would produce such effects as were discovered on dissection; viz. inflammation of the uterus. But where did he learn this? Certainly not in books. The only case on record which occurs to us, besides that of Miss Burns, is one recorded by Professor Christison, where a girl took a strong infusion of savine leaves to produce abortion; violent pains in the abdomen, with strangury, ensued; in two days after taking it she miscarried, and in four days after that she died. On dissection, there was found extensive peritoneal inflammation; the inside of the stomach was of a red tint, and the uterus presented only recent signs of delivery. Galen, it is true, asserts that savine acts with sufficient energy on the uterus to destroy the fœtus, and in the *Dictionnaire de Matière Médicale*, vol. iii. p. 696, it is stated that this article is constantly used by the negresses in the Isle of France to produce the same effect; but it is no where laid down that it will cause a specific inflammation of the uterus sufficient to cause death.

This shows how important it is that judges, as well as lawyers, should know something of the action of medicines upon the human system, and thus avoid laying down positions which, if not set aside, might lead to the punishment of the innocent. In the case above reported, it will have been observed by the reader, on how trifling a circumstance apparently the fate of the prisoner hung, and how vastly important it was that medical opinion should have been properly guarded, and stated with care and circumspection. The Court had already stated, that "if the savine had contributed, *in any degree*, to produce the result, if the exposure had been the chief cause, but still the savine had co-operated in producing death, then ought the jury to bring in the prisoner guilty."

Chief Justice Shaw then proceeded to question Dr. Peek as follows: (*Question.*) "If abortion is begun under circumstances of excitement of the system, would it be likely to go on?" *Ans.* "It would." *Q.* "*And would oil of savine produce such a state of the system?*" This was truly bringing the matter within the compass of a nut-shell, and the answer would have rejoiced the heart of a John Hunter or an Abernethy; it was "*from six to eight drops of oil of savine would be an ordinary dose; two tea-spoonsful would be twenty doses!*" The case was not strengthened by the next question—"Would two tea-spoonsful of oil of savine have destroyed this woman before it acted on the uterus?" *Ans.* "It would." Thus leaving it to be inferred, that she had not taken the oil of savine, or if she had, she had died from other causes. The doctrine laid down by the court in this case, appears to us to be liable to great abuse, and medical men are called

upon by all the motives of humanity, to express their opinions with extreme cautiousness. It is, indeed, impossible for human judgment, enlightened by the greatest experience and the most extensive knowledge, to decide positively as to the comparative influence of a variety of causes, all operating perhaps at the same time; such is the difference in the constitutions, the temperaments, and the susceptibilities of different individuals. It is often impossible, even, to determine, as in the above case, whether the effects are to be attributed to one, or to several causes; and it would be the height of inhumanity and presumption, to decide that the criminal cause alleged, was the efficient one, when there were others of sufficient potency to produce the result. In illustration, a case from *Zacchias*, quoted by the late Professor *Ashman*, is in point.

"When the plague was raging in the city," he remarks, "*Silvius Amorinus* being suddenly provoked by one *Ansovinus*, struck him on the head. The wound was considerably severe, but there was no fracture of the bone, nor any other injury, which should render it in itself dangerous. On the third day, *Ansovinus* was seized with a violent fever, with very acute pain in the head, and vertigo, and vomiting of bilious matter. At the same time the wound became greatly inflamed, and the next day mortification began, and livid spots appeared over the whole body; on the sixth day he died. Silvius was accused of killing him; and his friends applied to *Zacchias* for his opinion upon the case. *Zacchias decided that he was not guilty of the homicide.* For as the wound was not, in its nature, a mortal one, it was to be presumed that *Ansovinus* died of the plague independent of the wound."

Cases are continually occurring in practice where the cause of death is either unknown, or difficult to be ascertained; let the medical witness then lean to the side of mercy, and either confess his ignorance, or give such an opinion as may not be used to the condemnation of the innocent. Perhaps the importance of medical testimony is not sufficiently considered; if it were, it is doubtful whether assertions would be hazarded, and opinions submitted so freely, as they are.

"In matters of science," says *Ryan*, "opinions are received as evidence; but witnesses, in general, speak only as to facts."

"Evidence of character is founded on opinion; and the opinion of a medical man, is evidence as to the state of the patient."—*Philips' on Evidence.*

"On trials for murder by poisoning, the opinions of medical men are frequently required to determine whether the deceased did come to his death by poison. But when opinions of physicians are given in evidence, the facts on which they ground their opinions must be stated."—*Mass. Reports*, 225.

In the case of Mrs. Livingston, the appearances on dissection, prove clearly that she had lately been delivered of a fœtus. Dr. Cushing testified that the breasts were enlarged; the nipples surrounded with a dark areola; and that a whitish fluid, resembling milk, was pressed from them. The abdomen appeared to have been dis-

tended; (although the "transverse folds and wrinkles" may have been caused by former pregnancies;) the uterus was about four or five times its natural size, being from six to seven inches long, and from four to five broad; the os tincæ was also dilated, and the *cervix uteri* nearly obliterated; the cavity of the uterus contained nearly a pint; all going to establish the fact of her having been recently delivered. That violent means were used to procure abortion was also made evident, by the witnesses, who testified that she took southern-wood, quicksilver, iron dust, &c., and jumped from the table to the floor; but it does not so clearly appear that she took oil of savine; or if she did, that it was the cause of abortion. The verdict was unquestionably correct according to the evidence. As to the dying declarations of the deceased, on which the government seemed chiefly to rely for the conviction of the prisoner, they were justly set aside by the jury. For, in the first place, there was not satisfactory evidence that Mrs. L. considered herself to be in a dying state, or even in a state of imminent danger, without which such testimony can not have the nature of an oath; and in the next place her character for veracity was such as to invalidate her testimony, had it been given in a court of justice; and, moreover, a sufficient and satisfactory cause could be assigned for her attempt to fix the reproach of her pregnancy upon a respectable man.

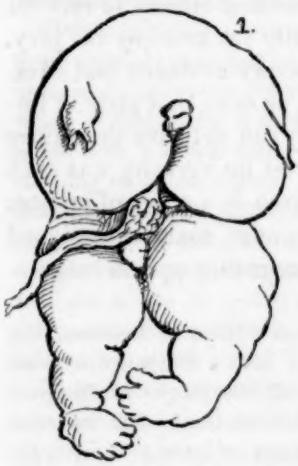
"The dying declarations of an accomplice, (*says Philips on Evidence,*) are admissible; for the accomplice himself would have been a competent witness, if he had been living. This was determined by all the judges in *Margaret Finchler's* case. The greater part of the jury were of opinion, in this case, that the declarations of the deceased were alone sufficient evidence to convict the prisoner, on the ground that they were not to be considered as evidence coming from a *particeps criminis*, as she thought herself dying at the time and had no view or interest to serve in excusing herself, or fixing the charge unjustly on others. *But others of the judges held that her declarations were not to be so considered, and therefore required the aid of confirmatory evidence.*"

Precisely such was the fact in the present case; and for want of such confirmatory evidence, was the prisoner acquitted. It is surely a wise provision in the law, that although the declarations of a dying person are admitted on the supposition, that in view of his awful situation, he has no motives to misrepresent, but, on the contrary, the strongest motives to speak without disguise and without malice; yet that the party against whom they are produced, may enter into the particulars of his state of mind, and show that the deceased was not of such a character, as was likely to be impressed by a religious sense of his approaching dissolution.

New York, April 18th, 1837.

ART. VII. *Case of Monstrosity, in which the Brain, Heart, Lungs, Stomach, Liver, Spleen, Pancreas, and Right Kidney were wanting.* By J. S. B. JACKSON, M. D., of Boston. (Read before the Boston Society for Medical Improvement, July 10th, 1837.)

Mrs. B., æt. 20, married three years, and has one child now living. June 25th was confined prematurely, being then about seven or eight months pregnant; attended by Ward N. Boylston, student of Dr. Shattuck's, through whom the specimen was presented to the Society. One well-formed child had been expelled, when the subject of this case, presented by the feet, and was withdrawn. The labour, otherwise was natural, and no cause could be assigned by the mother for the malformation. The case, without the dissection, was published by Mr. B. in the Boston Medical and Surgical Journal for July 19th, accompanied by a drawing on stone, which was made by Mr. James Colman, student of medicine, from which the accompanying wood-cut has been taken, and which renders a general description of the external appearances unnecessary. A very successful cast, in plaster, was also made by Dr. O. W. Holmes for the Cabinet of the Society.



June 30th, the *dissection* was commenced. The weight, then, was two pounds fourteen ounces, (avoir.,) having lost about one pound since it was born. Cutis had a bright yellow colour in several places where the cuticle had been removed; but elsewhere it was natural and the whole appearance quite fresh. Length, in a straight line, ten and a quarter inches; greatest width, five inches; and circumference at the same part, fourteen inches. The protuberance on the median line, and in front of the thorax, it may be premised, represented the head, so that the specimen was not strictly acephalous, though it perhaps deserved the name as well as almost any case on record. This protuberance was two and a half inches from the vertex, fleshy to the feel; and, for the most part, covered by cutis; it had a neck smaller than the body, and there was some dark hair about it, which extended upwards about an inch and also down into the sulcus. It consisted of two portions; the upper was from four to five lines in diameter,

rounded, and had a slight sulcus on the anterior face; the lower portion was considerably smaller than the upper, with which it was, for the most part, connected; but terminating anteriorly in two points one above the other, and directed upwards. Upon the anterior face, and between the two portions were two small openings, one on each side, and leading into cavities, which will be described in another place. On the back nothing remarkable except an appearance somewhat resembling a small cicatrix, one and a half inches from the vertex.

The upper extremities consisted of a very imperfect hand growing directly from the sides of the trunk. The right, which was considerably the largest, had upon it two fingers, and looked not unlike the extremity of a lobster's claw. Length one and two-third inches; greatest width three-quarters of an inch; inner finger eight lines long, six broad at the base, and two at the tip; the outer one was four lines long, four broad at the base, and one at the tip. The left upper extremity, which is scarcely seen in the drawing, consisted of a single finger, of a rounded form, thirteen lines in length, from four to five transversely, and diminishing to two at the tip. All of the fingers, as also most of the toes, had a slight transverse fissure in the place of the nail. Both feet turned directly in, the dorsum being directed forwards. Each had four toes, which were, for the most part, short, rounded, and fleshy to the feel; on the right these were at equal distances; but on the left the first and second were far apart, as also the third and fourth. Otherwise the lower extremities were well formed.

Anus imperforate. Penis sufficiently well formed, the prepuce adhering to the glands as it does frequently, if not generally, in the fœtus; urethra pervious. Nipples very distinct.

Of the umbilical cord there remained two and three quarter inches, a considerable portion having been left with the placenta; it was very small and much shrivelled. At its junction with the abdomen there was a hernia of the intestines, covered only by a delicate membrane, and extending into it one inch; the same appearance was noticed during the last year in the case of another monstrosity.

Integuments excessively œdematous and constituted by far the greater part of the bulk of the fœtus; contained very little fat. On the back of the thorax and towards the sides there were several large cysts, lined by a delicate, smooth, and polished membrane, and filled with clear, yellowish serum; varied as to size and form, but the largest, situated just to the left of the spine, would probably have contained ℥iiss.

Cavity of the abdomen was imperfect, but more capacious on the

right side than on the left. There were contained within it the small and large intestines, the left kidney, two renal capsules, testicles and bladder. The stomach, liver, pancreas, spleen and right kidney were wanting.

The greater part, if not the whole, of the small intestine and a considerable portion of the large were contained within the hernial sac. The convolutions of the small intestine adhered together at many points, and to the parietes of the abdomen; length eleven inches; diameter two to two and a half lines; terminated bluntly at the upper extremity in a cul de sac, and was nearly filled with a whitish, curdy substance. Large intestine eight inches long and about two lines in diameter. The upper part of the intestine contained a considerable quantity of white crumbling substance, having a peculiar, granular, and partly scaly appearance; the rectum was filled with transparent mucus with some traces of milky looking fluid. Cæcum well formed. The rectum terminated in the bladder just in front of the prostate gland by a very minute opening, though large enough to allow the bladder and the rectum to be inflated, either one from the other.

A perfectly similar communication was found in two other monstrous fœtuses dissected during the last year, in each of which the anus was imperforate; also, in the case of two infants, born with imperforate anus, but otherwise well formed, one of whom was examined on the 8th of last March, and the other on the 16th, each of them having lived just a week. In each of these the rectum communicated with the bladder by a valvular opening just where it did in the present case. It would be interesting to determine what relation, if any, exists between this internal communication and imperforate anus, and whether the latter is ever found without the former or some malformation analogous to it. In a monstrosity which I dissected a few years since the rectum opened into the bladder, not where it did in the above cases, but high up on the left side. Several other cases might be quoted, if necessary, from surgical writers; yet, however frequent this communication may be, it is no less certain that many infants born with the anus imperforate are saved by an operation, the internal opening, if there be one, becoming obliterated as a new one is established.

Mesentery sufficiently well formed, but the omentum was wanting.

The kidney reposed upon the front of the spine, or a little to the left of it, and opposite the lowest ribs. Length eight lines; width four; pelvis and mamillary processes quite distinct; ureter half a line in diameter, and pervious throughout. Renal capsule very small and closely attached to the concave edge of the kidney.

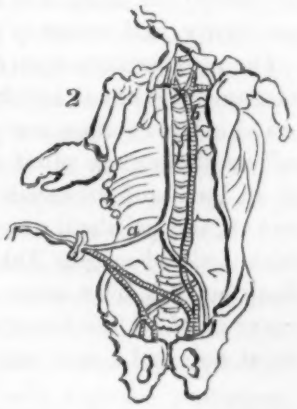
On the right side there is no trace of kidney or ureter, but just to the right of the spine and opposite to the left kidney there is a large renal capsule, of a somewhat pyriform shape, seven and a half lines long and four lines at the widest part.

The bladder was one inch long and well developed.

The testicles were situated just above the line of the pelvis; two and a half to three lines in length, and well formed. Vas deferens wanting on the right side; on the left it was traced very nearly to its termination in the urethra, but no vesicula seminalis could be found. Prostate gland well developed.

The heart was entirely wanting. The circulation, then, must have been carried on either by the vessels alone, which seems not impossible, or it was assisted, perhaps altogether maintained, by the heart of the other fœtus. The blood must have entered the monstrosity by the umbilical arteries, and been returned by the veins, the reverse of what usually happens, as the valves would have prevented it from reaching the capillaries of the extremities through the veins. These valves were unfortunately overlooked in the dissection, and their existence has been presumed, as they were found very distinctly in a mature fœtus which was recently examined for the purpose. If, then, the two placentæ formed one continuous mass, another neglected point, and the umbilical arteries of the two cords communicated freely, there is no great difficulty in supposing that the heart of the well formed fœtus may have carried on the circulation of both.*

The umbilical vein (*a*) divided into two large branches, about half an inch from its entrance into the abdomen; one passed down along the spine, rather towards the left side, and divided at the usual place into the two iliacs, which again divided to supply the pelvis and lower extremities. The other branch passed upwards at some little distance to the right of the spine, and divided at the upper part of the thorax to form the right and left subclavian and jugular vessels. About the middle of the thorax it sent off a large branch, corresponding apparently



* *December 2nd.* Mr. Boylston has had the kindness to call at the house of his patient, where he saw the mother; she has frequently been with women during labour, and knows the appearance of a placenta; took charge of it in this case after her daughter was delivered, and observed that it was small and divided

to the vena ozygos, being directed towards the intercostal spaces, and to a mass which is found in the place of the right lung.

The branches of the aorta were generally smaller, thicker, and more opaque than those of the umbilical vein; the difference in structure being such as distinguishes the arteries from the veins. The two sets of vessels were proved to be entirely distinct by blowing air into each of them separately when the abdomen was first opened, it being found that neither could be inflated from the other. At the upper part of the thorax the aorta (*b*) divided into the right and left subclavian, from which were sent off two very small carotids. The main trunk descended in front of the spine, or a little towards the left side, and furnished the intercostals; within the abdomen it was found on the right of the umbilical vein; instead of bifurcating as usual, it was continued along the pelvis on the left side, and terminated in the umbilical, and in the external and internal iliac arteries; on the right side the iliacs formed their own umbilical, and were quite distinct from those on the left side, so far as could be ascertained, the vessels having been coarsely injected when the dissection was somewhat advanced. In the front part of the thorax, beneath where the sternum should be, there was quite a network of vessels.

The cavity of the thorax, on each side of the spine, was nearly filled by what may have been the rudimentary lungs. The texture, for the most part, was close and very nearly resembled condensed cellular membrane; along the spine were several large cells filled with serum, and suggesting the idea of the lungs of a turtle; no pleural cavity; on being cut through, they presented no appearance of vascularity, and certainly nothing which resembled the air-passages.

The protuberance upon the front of the thorax consisted mainly of integument, without any trace of brain. The openings before mentioned led to cavities, one on each side, and quite distinct; they were sufficiently large to admit a probe, extended backwards three-quarters of an inch, and terminated in a cul de sac; the inner surface was smooth and polished, except just within the openings, where it was thickened and rough. Taken in connexion with the bones about them, these cavities bore some resemblance to the nostrils. Within the lower point of the lower portion of the protuberance, was a cavity about one and a half lines in diameter, and having slightly attached

into two portions; this last circumstance was noticed, as she herself once had twins, when, as she remembers, the after-birth formed one continuous mass. This statement was freely and confidently made, and certainly seems to deserve some credit, notwithstanding the lapse of five months; if true, the circulation of the blood must have been carried on by the vessels alone.

within it the crowns of two incisor teeth, of a size proportioned to that of the fœtus; connected with one of them laterally was a third, but smaller than the two others.

The spinal marrow was fully exposed by separating two of the dorsal vertebræ; it was of the usual size, and nerves were seen going off from each side. It was still more satisfactorily shown at its upper extremity, the posterior laminæ of the three upper vertebræ being united by cellular membrane, so as to be easily separated; the spinal marrow there bulged slightly, and measured one-third of an inch transversely, then diminished and terminated in a blunt point; nerves were sent from it to form the axillary plexus, which was large on each side. The sciatic nerves were fully developed. Within the thorax and abdomen were found several ganglia of the sympathetic nerve with some of their small filaments. Could find no trace of par vagum or of the phrenic nerves.

Muscles of the trunk and lower extremities sufficiently developed; elsewhere imperfect.

The skeleton has been prepared and placed in the cabinet of the Society. There were nineteen vertebræ, besides the sacral; three situated above the first rib are partially united, and the bodies of two or three of the upper dorsal are irregularly ossified. Ribs, nine on the left side, and ten on the right; all well formed, except that those on the right side have hardly a trace of cartilage. Sternum consists of two lateral portions, not at all ossified, separated widely except at the lower extremity, where they closely approximate, but do not unite; the left portion is attached to the clavicle and to the cartilages of the ribs, the right to the clavicle only. There is a scapula on each side, sufficiently large, though not well formed, the right being the most perfect. The clavicles are short, broad, and stout, and bent to somewhat of an angular form. The right upper extremity wants the humerus, but there is a slender bone, about an inch long, which resembles the ulna, and attached to its upper extremity a cartilage, about two and a half lines in diameter, which may be the head of the radius; these last are attached by ligaments to the glenoid cavity: the carpus exists, but the distinct bones or rather cartilages were not evident; there are two metacarpal bones, about five lines in length, one is slender and attached to the long phalanx above; the other, broad and stout, bifurcated, and is connected with both the phalanges; the long phalanx measures nine lines and has three bones; the short one measures six and has two.

In the left upper extremity there are two very singular bones in a cartilaginous state which it would be difficult to name; the largest,

equal to three lines in diameter, is attached by condensed cellular membrane to the glenoid cavity and acromion process of the scapula; the second, one line in diameter, is attached to the first; then follows a well-formed metacarpal bone, five lines in length, and a phalanx eight lines long and having three bones. Pelvis and lower extremities well formed, except that the feet are turned in, have only four metacarpal bones and phalanges, and have one of the cuneiform bones misplaced, being set back behind the others. Connected with the upper extremity of the spinal column is a row of eight small bones, apparently the rudiments of a head, and terminating in the protuberance seen externally in front of the thorax; they are altogether one inch in extent, and for the most part exceedingly irregular; two nasal bones, however, can be made out, and a third, containing the teeth already mentioned, resembles a distinct bone which was once found in a fœtus with hare-lip, and was supposed to be an intermaxillary.

Cases very nearly resembling the above, may be found in the Mém. de l'Acad. des Sc. for 1720, 1740, and 1703; and in the Phil. Trans. for 1767 and 1809. A complete summary, however, of what has generally been observed, may be found in the article Monstrosity, in the Dict. des Sc. Med. by Chaussier and Adelon, taken from a Memoir of Beclard's on Acephalous Monsters, and illustrated by a dissection of a well marked case from the original work.

ART. VIII. *Remarks on the Tuberculous Affections, with a Translation of the Instructions recently promulgated by the Academy of Medicine of France, relative to the study of Phthisis in different Climates, &c.* By W. W. GERHARD, M. D., Physician to the Philadelphia Hospital.

If there be any disease which, from its frequent occurrence and fatal termination, causes the despair both of physician and patient, that disease is the tuberculous affection. Whether we designate it as pulmonary phthisis, meningitis of children, chronic peritonitis, or scrofula, the radical disorder is the same, and presents similar anatomical characters. All the forms of disease, characterized under the term tuberculous, resemble each other in their anatomical lesions, which consist in the deposit of tuberculous matter. That is, a yellowish or grayish substance, without vessels, usually assuming a rounded form, but sometimes amorphous, or even deposited in the body of the tissues,

so as to give rise to the same appearance that would be produced by dipping the tissue into tuberculous matter, and then allowing it to harden. In these cases the infiltration of tuberculous matter through the tissue of the lungs or spleen, is often as perfect as that of wax through the cells of a sponge tent. The peculiar structure of the organs in some degree modifies the form of the tuberculous deposit; but however much its external conformation may vary, it is still so regular in its internal character, that it can always be recognised by attentive observation.

The variety in the symptoms of tuberculous diseases arises partly from the difference in the structure of the organs affected, and partly from the degree of inflammation which may accompany their formation. The functions of an organ are usually disordered when it becomes the seat of tubercle; and hence every local disease, which is accompanied by a secretion of this substance, offers the compound symptoms of the general tuberculous disorder and of the local lesion. Where the local symptoms predominate, the general character of the tuberculous disease is lost sight of, and the affection is regarded as an ordinary inflammation. Thus, most cases of tuberculous peritonitis and meningitis are even now considered as simple inflammatory affections. In the lungs, the local signs are much less intense, so that time is allowed for the developement of the symptoms of the general disease, and pulmonary phthisis is looked upon in the light of a mere chronic phlegmasia. It is this moderate developement of the local signs which has caused the true nature of pulmonary consumption to be much better understood than that of many analogous diseases.

When the tuberculous affection is extremely acute, it assumes more or less of the inflammatory form, which partly arises from the strong febrile reaction caused by the disease itself, and partly from the inflammation, which may occur in the tissue, which is the seat of the tuberculous deposit. In some cases the symptoms of inflammation predominate over all others. Thus in very acute tubercular consumption, the febrile movement is often much higher than it is in ordinary typhoid or in remittent fever; and as the lungs do not always suffer so much as to give rise to important functional signs, an acute pulmonary phthisis may be confounded with an ordinary remittent. This error of diagnosis is both frequent and difficult to avoid. In the tuberculous disease of the serous membranes, there is almost always an inflammatory action around the morbid deposits, and we thus have the symptoms of genuine inflammation with those of a tuberculous disease. As the signs of the serous inflam-

mations are generally much more distinct than those of the tuberculous disease, we are tempted to exclude the more important but obscure complication.

From the preceding remarks it may be seen that we use the terms tuberculous disease in connexion with a particular change in the living body, as well as with the anatomical lesion, termed tubercle. That is, although the aid of pathological anatomy has enabled us to detect the effect of a particular disorder of the economy, which effect we term tubercle, yet by an inquiry into the history of the disease we discover a series of symptoms which precede the morbid deposit. These symptoms are probably in all essential respects the same, but our power of observation is not in all cases yet sufficient for us to detect them in the midst of the various functional alterations which may attend, and in some measure conceal them. Pathological anatomy affords us but little direct aid in the search after the earlier symptoms of these diseases, but it opens the way for their discovery, and by proving that a tuberculous deposit has actually occurred, when these symptoms have continued for a length of time, it enables us to affirm with confidence that whenever they are found, the disorder will terminate in the secretion of tubercle unless arrested at an early stage. The physical signs afford nearly the same degree of proof as the anatomical lesions; a tuberculous deposit at the summit of one of the lungs, especially after it has begun to soften, may be recognised as certainly by the aid of auscultation in the living as by the sight and touch in the dead body. Connected with the physical signs we have a series of symptoms of slow and insidious growth, whose constant co-existence with physical changes, after they have persisted for a certain time, proves to us, that at an early stage, when the physical signs were yet absent or doubtful, the disease was already present, although it has not yet marked the patient with an ineffaceable impression.

On this account, in the study of tuberculous diseases, an experienced auscultator reaches a point when he values the physical signs rather for their negative than their positive evidence, for proving to him that though the general symptoms are indicative of these affections, the peculiar anatomical deposit has not yet occurred, and that the chances of arresting the disease are therefore greater. After many years attentive observation of this affection I have become convinced that an error of diagnosis, which is mischievous to both patient and physician may readily be committed, and that one who would be satisfied with the absence of physical lesions as sufficient proof of the non-existence of a tuberculous disease, must overlook the early or forming stage. The great proof of skill in the diagnosis of these

diseases, is to distinguish the slighter physical lesions and the antecedent symptoms which have given rise to them. The physical means of exploration are more applicable to the tubercular than to the cancerous or other general chronic diseases, merely because in a large majority of cases, tubercles are secreted in the lungs at an earlier period than in other organs, and that in that part they advance most rapidly. This election, as it is sometimes called of the lungs as the favoured seat of tubercle, gives an extraordinary importance to pulmonary phthisis over all other chronic disorders, and is the reason that the French Academy of medicine has spoken only with reference to pulmonary consumption. Strict analytical reasoning requires an examination of the signs and pathological anatomy of tubercles in other organs than the lungs, otherwise an essential character of the disease might be forgotten. We must therefore remember that as phthisis constitutes only one of the numerous forms of tubercular diseases, we should be careful to avoid isolating it from the numerous kindred affections occurring in the lymphatic glands, the serous or mucous membranes. The latter class of tuberculous affections are less convenient for study than phthisis, because their symptoms are more obscure and their lesions more deeply seated, but are not less important for a complete knowledge of pathology.

Although in the majority of cases, tubercles arise without previous inflammation, or other local disorder, it is not always so. There are certain individuals presenting no sign of ill health, or of scrofulous diathesis, from hereditary causes, who, under some circumstances, are seized with acute inflammation, which is followed by a tuberculous deposit in the part affected. In these cases, tubercle seems to a certain extent to replace the purulent secretion, which is the usual product of inflammation. In other and more numerous cases, the inflammation which precedes tubercles, occurs in individuals who are already predisposed to their formation, and the acute inflammation is then merely the accidental cause of their developement. This inflammation may be seated in the tissue which afterwards becomes tuberculous or in adjoining parts; thus, pneumonia, and still more frequently bronchitis may precede tuberculous formations; pleurisy is also an occasional exciting cause of phthisis, and in such cases tubercles are not necessarily found in the serous membrane itself.

Another mode of formation of tubercle occurs as a consequence of fever, especially the typhoid fever. In some cases it occurs under the form of very numerous gray granulations scattered throughout the lungs, or else it is infiltrated throughout their tissue. Both these

varieties are speedily fatal in a large proportion of cases. In some cases the more chronic form of phthisis is developed; it is then more frequent after the termination of the fever, than during its active period. A third form of pulmonary disease differing in some respects from phthisis, bronchitis, and lobular pneumonia may occur during the fever, and as soon as it has passed through its course, a cavity begins to form which is generally confined to the lower lobe of the lungs, but terminates in death, without obvious secretion of tubercle.

Other causes of sudden tuberculous disease are well known. Confinement to bed or even to a single apartment, depressing passions, insufficient supply of food, particular trades and occupations, all have an influence in determining the tuberculous affection. We already possess a mass of documents relative to these points, but we have still only a vague knowledge of the influence of climate in forming or retarding the progress of tubercles. The object of the French Academy is to supply this deficiency, and to obtain a sufficient number of well ascertained facts by the aid of numerous physicians scattered throughout various countries. By their united efforts a mass of documents may be procured in a comparatively short time, which the most untiring industry on the part of a single individual could never collect together.

We dare not hope that our knowledge of the influence of climate will become so accurate as to remove all doubts relative to the selection of particular situations for consumptive patients, but we may confidently anticipate that the situations which rather favour than retard the developement of phthisis, will become so well known, as to no longer remain amongst those which are recommended as the last hope of the feeble consumptive. We believe that the true solution of the tuberculous disease will at last be found, not in the influence of particular climates, occupations or situations in life, but in individual states, which are produced by many and various circumstances. We believe that researches into the influence of external circumstances in forming or in retarding tuberculous developement are most useful, but we do not imagine that they are at all sufficient to furnish the key to the difficult problem. That a solution will one day be reached, is our firm conviction, and then only can we be sure of our success in combating a disease which in the large majority of cases is now only relieved or protracted, but not cured.

Instructions of the Royal Academy of Medicine of France for the study of Phthisis, with reference to different climates. Read on behalf of a Committee by M. Louis.*

The committee was appointed; and on its behalf, Dr. Louis presented the following report:

"The Academy of Medicine, after a long discussion as to the action of climate upon the developement and progress of phthisis, has perceived that its effects were much less clearly proven than might be supposed from the practice of the majority of physicians, and as there is no point in practical medicine of more importance, the Academy has determined to investigate it without delay.

"But this question, like all those which are offered in medicine, can only be decided by numerous and accurately observed facts: and as it relates to climate, these facts must be ascertained in various parts of the globe. The Academy should then apply to all physicians who, by their position, are enabled to collect together a sufficiently large number of facts. It has less hesitation in doing so because, although it requires considerable labour to attain the desired end, the results of these labours will remain the property of their authors, as the Academy can only collect and compare them together, and publish the general conclusions.

"At the same time that the Academy is asking for the assistance of both French and foreign physicians in resolving one of the most important questions of practical medicine, it was thought best to furnish them with a kind of explanation of principles, or some details as to the manner of effecting the task which is proposed, in order that both the objects proposed and the terms necessary to be used should be thoroughly understood.

"The first point to be fixed with precision is the meaning of the word *phthisis*. By this term the Academy, with most modern pathologists, means that affection which, with few exceptions, leads gradually to death from progressive emaciation, and is characterized anatomically, by productions or tumours developed in the pulmonary parenchyma, generally rounded, of a greenish-yellow colour, homogeneous and of a dull appearance, firm, difficult to break at first, but which at the end of a variable period become soft, empty into the bronchial tubes, and are succeeded by cavities of various dimensions; they are generally preceded by grayish semi-transparent granulations, which give rise to them, so that in some cases these granulations exist alone. Any other disease of the lungs or pleura which should cause emaciation and death, without being connected with the tuberculous lesion above described, is not considered by the Academy as a case of phthisis.

"As to the principal object, that is the solution of the question properly so

* These instructions were transmitted to the translator last summer by Dr. Louis, with the request that he would make them known in America. It was his original intention to have translated and published them in the November number of this Journal, but accidental circumstances have caused a delay in their publication.

called, it must be evident to every body that the influence of climate upon the developement and progress of phthisis can scarcely show itself except in the following manner: either in rendering this disease more rare in one country than in another, or by accelerating or retarding its progress, or at the same time rendering the disease more slow and less frequent, either in the natives of the country, or in foreigners, all other things being equal, as age, sex, &c.

"The solution of the first problem, that is, the rarity or the frequency of phthisis, is evidently anatomical, and every where, if numerous autopsies can be made in the hospitals, materials for resolving it may be collected. It will be sufficient to determine in a certain number of dead bodies the proportion of those who were carried off by phthisis, or present tubercles in the lungs; provided, however, that the hospital where the facts are noted, should not be specially destined for the aged or for chronic diseases; for in that case, the results may be rigidly deduced, but at the same time be false.

"The same thing would occur if, from the rules of the hospital in which the observations were made, tuberculous patients were not admitted, for then tubercles would only occur as a complication, and an error equally grave with the preceding one, would arise.

"We might certainly restrict this part of the question to a brief description of the lungs, but that it may assist in answering the other queries, it will be necessary to add to this description, whenever practicable, the state of the digestive tube, especially of the larynx, of the œsophagus, and of the small intestine, the state of the mesenteric glands, of the trachea, and of the liver; finally the age, sex, and appearance of the skeleton.

"The second part of this question, the progress of the disease, comprehends two series of facts—one relative to subjects who die, and another relative to those who are cured, or whose disease is arrested in its progress. In both these classes of patients there is a circumstance which is both important and difficult to ascertain; that is, the beginning of the disease: it is important, because without it we cannot ascertain the duration of the disease with any precision; difficult, because it requires numerous questions directed towards this single point. The first answer of a patient to the question, how long have you been sick, is generally inexact; instead of limiting our inquiries to it, we must return to it again and again, ask the patients if, before the time which was fixed, they had become thin, if they had had pains in the chest, if they had spit blood; and, in the event of an affirmative answer to the last question, we must endeavour to ascertain approximately the quantity of blood expectorated in a given time, &c.

After the commencement of the affection is ascertained, we must inquire into all the symptoms which may characterize it at its origin, or after the patient has come under observation, consequently all the means of exploration must be carefully practiced.

We next ascertain if the progress of the disease has been continued or intermittent, or remittent, and what means have been used against it. This must also give rise to numerous and reiterated questions, for *exact answers cannot be obtained except at this price.* When the bodies of the dead are opened, we must not only briefly describe the lungs, but we must also, as already mentioned,

examine if the secondary lesions which in the climate of France seem exclusively, or almost exclusively, confined to consumptives, have occurred; if there be ulcerations of the larynx, of the trachea, of the small intestine, or if the liver be fatty. These lesions may not be equally frequent in all climates; and this difference, if it should occur, would indicate, as far as it extends, a difference in the progress of the disease.

If, instead of constantly ending fatally, the disease terminated in some cases by a restoration to health, it is not sufficient merely to state the fact, but it should be accompanied with many details, so that no doubt could exist as to its reality, if it had been well observed, and if an error has been committed, that it may be discovered. For what physician can affirm that he never commits errors of diagnosis, and who can expect to be believed on a simple assertion.

To the above-mentioned details, we must add those which relate to the sex, the age, the strength or weakness of constitution, to the occupation of the patients and to the time during which they had followed it, to the duration of their daily labour, to their food, to the several emotions which they had experienced; for without these details we should be in want of the necessary elements for studying in a proper manner, the influence of climate upon the developement and progress of phthisis.

In order to facilitate the labour of analysis by the Academy, that is, the comparison of the numerous facts noted in the most various climates, the details relative to both the first and second part of the problem, should be placed in a tabular form. One table will refer to the variety or the frequency of the disease, and another to its progress. These tables should be divided into as many columns as there are distinct objects of inquiry; the tables numbered one and two are given as examples of what we mean, and to insure greater regularity.

After the study of patients, will come that of the climate, and especially of localities, which have often a more powerful influence than climate itself, upon the course and the developement of diseases. It will be necessary to make known the degrees of latitude and longitude of the country, the mean temperature during a certain lapse of time, that of each month in the year during the same period, the mean quantity of rain falling during the year and in each month of the year, the winds, the abrupt changes in the atmosphere, the nature of the ground, whether low or elevated, the rivers, their direction, the quality of the water, the mountains and their height, the forests and their relative extent compared with that of the cultivated ground, the tempests, fogs, &c. These facts, like the preceding, should be arranged in the same number of columns, or if preferred, in the order indicated in table No. 3.

In the preceding statement, the Academy has only asked for those details which are believed to be absolutely necessary for solving the proposed problem, but it asks before every thing else, even before the number and variety of facts, for their *exactness*, without which the most rigorous conclusions would only lead to erroneous results.

In the opinion of the Academy, if we wish to arrive at rigorous and true results, the question should be studied as if for the first time, and as each of its members has given up his previous opinions, until the question should be

resolved in a more positive manner, it hopes that the physicians who may wish to take part in the proposed work will do so without preconceived notions, that they will *seek to learn and not to prove*, and that they will consider the opinions they may entertain relative to the influence of climate upon the developement and progress of phthisis as *provisional*, until the analysis of the statistical tables forwarded to the Academy may furnish us with exact conclusions. The Academy also hopes that they will not delay the search after the facts necessary for the solution of a problem which is equally important to all parts of the civilized world, and can only be determined by the combined efforts of the physicians of all nations.

Read and adopted at the session of the 17th January, 1837.

PARISET, Perpetual Secretary."

TABLE No. I.

No.	Age.	Sex.	Temperament.	Conformation of body.	Lungs.	Epiglottis.	Larynx.	Trachea.	Œsophagus.	Small Intestine.	Liver.

TABLE No. II.

No.	Age.	Sex.	Temperament.	Conformation.	Occupation.	Food.	Habits of life.	Beginning and duration.	Symptoms at beginning.	Symptoms at observation.	Progress.	Treatment.	Lungs.	Epiglottis.	Larynx.	Trachea.	Œsophagus.	Small Intestine.	Liver.

TABLE No. III.

No.	Longitude.	Latitude.	Mountains.	Forests.	Soil.	Rivers.	Rain.	Moisture.	Mean Temperature.	Dwelling.	Winds.	Suddenness of changes of Temperature.

ART. IX. *Cases and Observations.* By R. D. MUSSEY, M. D., Professor of Anatomy and Surgery in the Medical Institution at Dartmouth College, New Hampshire, and Professor of Surgery and Obstetrics in the College of Physicians and Surgeons of the Western District of the State of New York.

CASE I. *Extraordinary Case of Animal Electricity.*—Thousands recollect the remarkable and brilliant red northern light, which appeared on the evening of the 25th January, 1837. On that evening Mrs. B., a lady of about 30 years of age, residing in Grafton county, New Hampshire, while occupied with her friends in contemplating that extraordinary phenomenon, discovered that an electric spark passed from her fingers, elbows, or any other part of the limbs or body, when brought nearly in contact with conducting substances. The possession of this faculty was scarcely less surprising to herself than to her friends, whose incredulity on its announcement, was soon dissipated by a few snaps from her finger. On the following day the same power existed; and subsequently, more or less, for twelve or thirteen weeks. Its intensity gradually increased for four or five weeks, and from that, as its maximum point, it slowly declined, till early in May, when it was entirely lost, and has not since returned.

She was much annoyed with a spark passing as often as twice in a minute from her feet, when placed upon the hearth-plate of an iron stove; and in a dark place her hands, on being rubbed together, often exhibited brilliant electrical coruscations.

Animated conversation and moderate exercise appeared to promote the electrical accumulation. On taking a turn or two across the carpet, the intensity of the spark was evidently augmented. The state of the atmosphere, in regard to moisture and dryness, seemed to exert no influence upon this faculty. It was not so, however, with temperature. A low temperature enfeebled it, and at 25° F. it disappeared altogether; but was resuscitated by a due elevation of temperature, and at 70° or 80° its activity appeared to be at its maximum.

On some occasions a visible spark could be produced once in a second; and in a minute four strong sparks, each an inch and a half in length, were elicited.

Mrs. B. wore a silk dress at the time of the commencement of these phenomena, and during most of the period of their continuance; but, at the suggestion of her physician, this was exchanged for cotton and flannel dresses successively, without exerting the least apparent influence upon this extraordinary faculty.

Col. B., the husband of this lady, was absent at a remote part of the country, at the time of the electrical developement. On his return in April, she met him at the door, and playfully presenting her finger to his face, astonished him with her newly acquired power.

Mrs. B. is a lady of intelligence and worth; possesses a flow of spirits; and has a temperament somewhat sensitive, to which her sedentary habits may have contributed, as she has devoted a considerable time to books. She has been married about ten years; has had no child; but without much irregularity, has been visited with the periodical illness. Before marriage she was subject to dyspepsia, accompanied, more or less, with neuralgia. Since marriage she has enjoyed better health, although it has not been vigorous.

The foregoing statements may be relied on. The facts are notorious in the place of her residence. With her family, as a consulting physician, I have been acquainted for some years. I called upon her early in May; but the electrical phenomenon had wholly disappeared a short time before. She informed me that she thought her health was not quite as good during the electrical developement as it had been previously.

She, as well as her family friends, confirmed the facts above stated, for which I am primarily indebted to my intelligent friend Dr. W. Hosford, her physician, who resides in the same village, and who has taken a lively interest in her case.

Case II. *Congenital Absence of the Meatus Auditorius Externus of both Ears, without much impairing the hearing.*—Mr. N. W. Goddard, æt. 27, of Windsor county, Vermont, bookseller, requested me in 1834, to examine his ears; at the same time remarking, that his hearing was not quite as quick as he could wish. The left auricle was smaller than the average size, and its several ridges and pits not quite perfectly developed. The right auricle was scarcely half as large as the others, and very imperfect in its form. In neither of them was there a vestige of an opening or passage of the external ear. There was not even a decided indentation, corresponding with the entrance of the ordinary orifice of the meatus externus, but the whole was sealed up, and made smooth and firm by common integument. From the best examination I could make, by moving the auricles from side to side, and attempting to depress the skin in the situation of the usual orifice, I came to the conclusion that there was probably nothing like an occult canal between the integuments and the tympanum.

The sense of hearing was too obtuse for low conversation, and yet

it was sufficiently good to enable him to prosecute his business without material inconvenience. He informed me that the ears, and the power of hearing, had been in the same state from his earliest recollection, and according to the assurances of his parents, from the first period of infancy. I made several experiments in this case, from which it appeared that an open or shut mouth and nose had no influence whatever upon the power of hearing. The experiments were repeated so as to satisfy all present, as well as Mr. G. himself, that he could hear with equal readiness when the lips and nose were closed, and pressed together by the fingers of assistants, as when both were wide open. I bent a probe to the proper angle, attempted to introduce it into the Eustachian tube; but although its extremity was arrested, as by a pit or fossa, I could not pass it as usual up towards the internal ear. When the probe in this situation was repeatedly pressed in the natural direction of the Eustachian tube, he complained of an uneasy sensation deep in the ear. From these ineffectual efforts to push the probe as far as usual, and from the hearing being nothing impaired by a firm closure of the lips and nose, I concluded that the Eustachian tube, if its guttural orifice existed, had no communication with the cavity of the tympanum.

The hearing was equally good upon the right and left side of the head, and a sound from behind was quite as readily appreciated as one coming from a position in front, or on either side. I covered the whole head with successive layers of cloth, and found the hearing to be decidedly obscured by the application of a single layer, and by each of the others in proportion. A few layers only were sufficient to deafen him to almost the loudest articulations which could be made. Covering the face while the ears were left exposed, evidently obscured the hearing, with the mouth and nostrils open or closed. When the ears were included in the covering, the difference, if any existed, was not very distinct. But covering the hairy scalp, except a small portion at the anterior and upper part, leaving the face and ears bare, depressed the hearing in a marked degree, much more than covering the face and ears, leaving out the scalp. These experiments were so many times repeated, as to leave, I think, no room for mistake. On speaking to him with one end of a stick in my mouth, while the other end was applied in succession to different parts of his head and face, I found that the part over the mastoid process conducted sound the most readily: and the parts corresponding with the upper two-thirds of the occipital, the mastoid plate of the temporal, and the posterior half of the parietal bones, transmitted the sounds more readily than the anterior half of the scalp, the forehead, temples, or any other part

of the face. I saw Mr. G. again in May, 1836, and found his hearing powers in the same state.

It is evident that in this case the integuments of the face and scalp are capable of receiving acoustic impressions, from the atmospheric waves or vibrations necessary to the production of sound, and of transmitting them to the organ of hearing. By what nerves distributed upon those parts, is this function accomplished? Mr. Swan, who, in a paper upon the physiology of the ear communicated to the Medico-Chirurgical Society of London in 1820, and recorded in the eleventh volume of the Society's Transactions, describes a case in many respects similar to the foregoing, suggests that the facial nerve or portio dura may assume the vicarious function of audition, taking the office of the auditory nerve. If the facial be chiefly or wholly a motor nerve, as physiologists at the present time seem disposed to believe, the extraordinary function of one of the special senses would be less readily attributed to it, than to the trigeminus, a considerable part of which belongs to common sensation, while another portion is appropriated to the immediate function of taste. In the case of Mr. G., however, the distribution of the facial nerve could not explain the quick susceptibility of nearly the whole scalp to auditory impressions. It can hardly admit of a doubt that those nerves derived from the spinal cord below the occipital hole, and reflected in profusion upon the scalp, are concerned in this uncommon function; while the branches of the fifth pair are probably the seat of the peculiar faculty upon the face. Is there any way of determining whether the power thus specially subservient to the function of hearing be naturally inherent in the nerves of the face and scalp? and if so, can a method be devised of eliciting its dormant energy, and turning it to account in cases of deafness connected with casual disease of the external meatus, or the tympanum?

Case III. *Successful Operation for Ovarian Disease.*—In the summer of 1828, I was consulted in the case of Mrs. Sly, upwards of 40 years of age, of Ryegate, Vermont. She had a tumour in the abdomen, which extended from the hypogastrium to the left hypochondrium; it was elastic, giving a distinct sense of fluctuation to the touch, and could be very slightly moved from side to side. This tumour was discovered about two years before, and had increased considerably within the last year. Three or four months before I saw her, she was confined some time with symptoms of subacute inflammation in the abdomen, after which, as her physician assured me, the tumour was less movable, than it had previously been. For two or

three years her general health had been variable, marked by dyspepsia and occasional febrile attacks; and since her sickness in the spring, although she had been gradually improving, her health was far from being sound. The monthly illness, which had not been perfectly regular, did not appear to have been influenced by the growth of the tumour; and from the whole complexion and history of the case, it was inferrible that the swelling was a cyst connected with the left ovary.

The patient had been taught by her physician, to expect a cure from an operation, in which the tumour should be removed, and was somewhat disappointed on my expressing great doubt of the practicability of safely extracting it, on account of the extensive adhesions which probably existed. She was, however, assured, that an operation might be undertaken without serious danger, and prosecuted so far as to admit of the precise state of the case being ascertained, and that the sac, if not removable, might be opened, and possibly so much inflammation excited in it, as to cause an adhesion of its walls, and an ultimate removal of it by absorption. With these views of the case, the patient and her friends decided upon the operation. I left her with the injunction to live on farinaceous preparations and milk, and revisited her in about a fortnight to perform the operation.

It was a warm afternoon in July, the temperature of the atmosphere being upwards of 80° F. when the operation was undertaken. An incision was made through the integuments at the linea alba, from the umbilicus to the symphysis of the pubis. On the viscera being exposed, a sac appeared extending from the cavity of the pelvis, through the left iliac and lumbar regions, into the left hypochondrium. This sac was so large as to occupy a portion of the epigastric, the right iliac, and lumbar regions; but did not extend into the right hypochondrium. Most of its anterior surface was covered by the mesocolon, with which a firm adhesion was formed throughout the whole extent of their contact, and the transverse portion of the colon was in the lower part of the abdomen, passing from one iliac region to the other. The upper part of the sac was firmly fixed by adhesions so high in the left hypochondrium, as to render it difficult to decide precisely what parts were involved; probably, however, the spleen and splenic extremity of the stomach were implicated; but as handling the viscera caused the patient to complain, this point was not ascertained.

These extensive adhesions settled the question of removal of the tumour by dissection. All that could safely be attempted was, to discharge the fluid and take measures to inflame the interior surface

of the cyst. Accordingly, upon the median line, in one of the meshes of the beautifully injected plexus of mesocolic vessels, a puncture was made large enough to admit a catheter, by which the fluid, slightly turbid, and amounting to between four and five pints, was drained off. The opening was then enlarged, and a tent of twisted charpie introduced a little way into the sac, the other extremity being left to hang out externally. The lips of the wound were then brought together and secured by three stitches, which did not penetrate the peritoneum, and by adhesive strips, to which additional support was given by a compress and broad band around the body.

The patient was kept upon her back for several days, until the adhesions of the wound, which united by the first intention, were firm. She was rather restless the first night after the operation, and took a moderate anodyne dose; there were no troublesome symptoms afterwards worth naming. For several days a thin fluid dripped away through and around the charpie. After a week the fluid became turbid, and in a short time distinctly purulent. In three weeks the discharge was trifling, and the opening speedily closed. In a few weeks more not a vestige could be felt of the sac, which, at the place of puncture, at the time of the operation, was about a line in thickness.

In about a year from the operation, Mrs. S. was safely delivered of a son, her fourteenth and last child. I saw her in the summer of 1835, and learned from her, that since the birth of her child she had enjoyed pretty good health. The abdominal integuments between the navel and pubis were at this time thin and pouched, and she found it convenient to avail herself of a little mechanical support from a laced waistcoat. During the advanced period of her last gestation, as she assured me, she suffered much from the distension of the abdominal integuments; and although she wore a laced garment adapted to the protuberant form of the body, she was in daily fear, lest the attenuated skin should give way at the cicatrix of the incision. Her fears, however, were not realized.

The case of Mrs. S. is one of the few which admit of a radical cure from ovarian disease, by a surgical operation. The cases are still rarer in which the diseased part can be safely dissected out. In the great majority of instances, the disease consists in a fleshy growth united with one or more cysts, and the few specimens of the disease in the form of a single cyst may be regarded as exceptions to a general rule.

Almost without exception adhesions are formed between these tumours and the abdominal parietes or viscera, or both; and these being

generally too extensive to admit of a safe separation by dissection, the operation for *removal,* especially where the tumour is wholly or in part fleshy, can never be attempted with confidence of accomplishing the object; and when attempted, can rarely be completed, without subjecting the life of the patient to imminent hazard. To be sure, cases have been reported of successful removal of ovarian tumours, even where the disease was not merely cystic: but there is reason to believe that a large majority of operations instituted with a view to dissect out the disease, have failed, and been instrumental to the speedy death of the patient. I could cite four cases of this kind, and if proper, could designate the several operators, who thus gave themselves occasion to repent of their temerity.

It does not seem probable that inflammation and adhesion of the walls of an ovarian cyst, induced as in the foregoing case, would be followed by the absorption of a morbid, fleshy, or solid growth accompanying it: there might, however, be no impropriety in making the trial, in a case of a small fleshy tumour, united with a large sac, provided the patient, after being made fully to comprehend the object, should prefer it. Of a numerous list of cases of ovarian diseases, which have been presented since the foregoing operation, I have not found one which, as it appeared to me, would admit of an operation with the least prospect of cure. In conclusion, I will remark, that should another case offer itself like that of Mrs. S., I should proceed to open the abdominal parietes at the median line, for an extent sufficient to enable me to penetrate the sac under the direction of the eye. Let it be remembered, that in the above case, the transverse colon passed across the abdomen in front of the sac, and was immovably attached to it by adhesion, about midway from the navel to the pubis: of course the common operation of abdominal tapping would probably have been fatal.

Case IV.—*Adhesion of the walls of the Vagina.*—In January, 1835, I was requested by my friend, Dr. L. A. Smith, of Newark, New Jersey, to visit Mrs. B., æt. 26, the wife of an intelligent mechanic, from Northampton, England, who had been six months in this country. For more than three years, that is, since the birth of her only child, she had not menstruated; and without intermission, during that period, she had experienced a difficulty, and much of the time had suffered great pain in passing the fæces and urine. At the recurrence of the monthly period, her pains were excruciating, so as to confine her to bed. After the birth of her child, she had a purulent discharge from the vagina for four or five weeks, the sequel of severe

and protracted labour, in which the head of the child lay imbedded in the vagina for three days. During her convalescence, notwithstanding the existence of this discharge, together with great soreness in the vagina, and difficulty in urination, her physician made no examination of the parts, but expressed to Mrs. B. the opinion that she had a stone in the bladder, and some day would be under the necessity of having it extracted. With this impression, soon after arriving in the United States, she put herself under the care of Dr. S., who, on investigating the case, ascertained that the walls of the vagina were adherent, and correctly judged that her severe and protracted sufferings were owing to this circumstance.

On examining the parts, I found only three-fourths of an inch of the vagina open, its walls thickened, the calibre small, and the cicatrix of adhesion very firm. By passing a finger into the rectum and a catheter into the bladder, it was ascertained that a tumour, yielding very slightly to pressure, occupied the upper half of the cavity of the pelvis, extending antero-posteriorly, so as to compress the rectum and the bladder. This readily explained the pain and difficulty attending the evacuation of those organs, and the fact of her seldom having had a motion of the bowels without an active cathartic. This tumour extended some distance above the brim of the pelvis.

After due preparation, by evacuating the rectum and bladder, the operation was performed. Assisted by Dr. S., I made a cautious dissection, with a narrow scalpel, from side to side, into the cicatrix, in a direction which I had previously decided upon, from an attentive consideration of the anterior and posterior extent of the tumour. Having pursued the dissection about an inch, I passed the instrument into a cavity, from which gushed a stream of thick black fluid. A considerable quantity of this being drained off, the opening was enlarged so as to admit of the easy passage of the finger. The uterine portion of the vagina and the cervix uteri had been so dilated, as to be scarcely distinguishable from each other in forming the common wall of a sac, which had been gradually enlarging for three years by the menstrual accumulation. The parts were cleansed with warm water, and a bougie, moistened with oil, left in the wound. Dr. Smith had the care of the patient afterwards.

In a letter from that gentleman the following March, viz: three months after the operation, he says,

"I write to inform you of the result of the operation for adherent vagina in the case of Mrs. B. The wound is now entirely healed, and the cicatrix is much more yielding than I expected. The finger can be passed very easily, and without pain, to the os tincæ. The bowels and bladder are easily evacu-

ated. She menstruates regularly, though she suffers more pain at such times than before the vagina became diseased. The strength is improving, and she has every prospect of a perfect restoration to health."

In a letter of December 10th, 1837, the same gentleman writes,

"Up to last fall and the beginning of winter, when she removed from town, Mrs. B. had good health: her menses appeared regularly and in the usual quantity, though she usually, at the period, suffered rather more pain than she did formerly. The last time I examined her by the touch, which was about a year after the operation, the passage was firmly contracted, admitting only the finger, and that with some pain. The uterus was entirely healthy, though she has not been pregnant, probably from not having been exposed."

With regard to the contracted state of the vagina thus described by Dr. S., I would remark that it might, in all probability, be dilated to almost any requisite extent, by the persevering use of bougies, joined with mucilaginous and unctuous applications, and possibly the extract of belladonna. Even should pregnancy take place, it is not improbable that nature would make such preparation of the parts as to admit of safe delivery.

Case V. *Arm and Shoulder-blade torn from the Body.*—On the first of April, 1819, Albert Webster, a robust youth, of 16 years of age, had his left arm and shoulder-blade torn from his body in a cotton factory. On my arrival, two hours after the accident, I found him lying on his right side, and in place of his shoulder-blade, an oval-shaped wound, six inches in its vertical, and five in its horizontal diameter, covered with a material resembling the white of an egg, about one-fourth of an inch in thickness. The margin of the wound was more even and regular than I should have expected to be made by a forcible disruption of the skin. The collar-bone projected half an inch or more at the upper part, and a little below it was a coagulum as large as the point of the finger, alternately rising and retreating in conformity with the arterial pulsations.

There was no hemorrhage at the time, and I was informed that probably not more than a pint of blood had been lost. On inspecting the clothing and the place where the accident occurred, I was of opinion that all the blood discharged was less than a pint. Hanging from the wound were two large nerves, (without much doubt the meridian and the ulnar,) more than twenty inches long, which were still sensitive near the body, and the cutting of which at the surface of the wound, caused the patient to complain of a pain, which he referred to the hand of the injured side. The part of the large pectoral muscle which remained was contracted, forming a tumour, tender to the

touch, between the anterior edge of the wound and the sternum, while at the posterior edge the rhomboid muscle hung loose and insensible. The projecting portion of this muscle was cut away, and the edges of the wound approximated so as to cover the extremity of the clavicle, and meet; the integuments also were made to meet at the lower angle of the wound, but could not be brought together at the middle without rendering the skin too tense for safety. An uncovered space was therefore left, an inch and a half at the widest part. No ligature was applied to any vessel, nor were stitches employed in the wound; adhesive strips, a compass, and bandage constituted the dressings.

The patient, for the first two weeks, was kept exclusively upon farinaceous substances, prepared with water; afterwards some milk was added. The symptoms were mild; most of the wound united by adhesion. A small abscess under the clavicle was opened on the eighth day. In two weeks the wound was healed, except the part uncovered by integuments; upon this the skinning process was comparatively slow. In eight weeks, however, the wound was perfectly healed. A year after the injury, I saw the patient, and found a bony plate, apparently about three-fourths of an inch wide, taking such a course as to represent the marginal parts of the entire body of the scapula, firmly adherent to muscular parts beneath the skin. This triangular bony frame could be moved upward and downward, backward and forward, by a voluntary motion of the muscles attached to it.

Some of the circumstances connected with the accident were interesting. The young man was at work mending a broken band, which, being looped over his left arm, was carried, as he stooped to pick up something from the floor, under the main band, became entangled in it, and drew him up in a moment to the drum or cylinder, which carried all the bands of the carding machines in the room. His arm was drawn through the space between the drum and the ceiling, the fore-arm badly broken, probably at this time; his head and body were arrested by the ceiling and the drum, and for a few seconds the whole machinery was stopped.

From the account given by the agent of the factory, who was a spectator of the scene, and from what the patient himself recollected, it is probable, that at this juncture, the latissimus dorsi and pectoralis major muscles gave way, and that then making an effort with the other arm, and changing his position, the patient became more entangled with the bands, while the machinery started afresh, carrying him through the space between the drum and the ceiling. By

this time he was so involved in the bands that his body was secured fast to the drum, while his legs, as he passed under it, hung dangling. In this way, without apparent change of position, he made, as the agent who saw the whole assured me, about fifteen revolutions round the drum before the motion of the machinery could be effectually stopped by cutting off the water from the great wheel. At each of these revolutions, his legs fell with such force upon some top card pins, which were uncovered upon a carding-machine under him, that he was wounded with ten or a dozen holes, punched some of them deep into the legs, by these blunt iron pegs, two inches or more in length, and perhaps one-sixth of an inch in diameter. When he was disentangled from the bands, and taken down from the drum, he was able to stand upon his feet, and I was told that he actually walked a few steps. As his frock was opened, his arm with a clot of blood dropped upon the floor. I measured accurately the space between the drum or cylinder and the ceiling of the factory, through which he passed several times, as before stated, and found it to be scarcely *seven inches and a half*, although the ceiling was a plastered lathing, which probably might have yielded or bent a little as he passed. The wounds of the legs were a little troublesome for two or three days, but caused no serious symptoms; the soreness of them appeared to be much relieved by keeping the legs wrapped in dry batted cotton.

It was an object with me to be able to conjecture what amount of resistance the integuments and muscles could make, before the limb could be separated from the body; and as the whole machinery in free motion was arrested, and held in check for a few moments before these parts gave way, and as the whole force was probably for a short time thrown upon the large pectoral and latissimus dorsi muscles, it appeared probable that the power of these muscles, the thick axillary margin of them especially, might be pretty nearly tested. Accordingly, the agent, Mr. Green, kindly assisted me in an experiment to ascertain the weight requisite to arrest the full motion of the whole machinery of the mill. A few turns of a large rope were passed round the drum; to one end of it was appended a tierce containing weights, while the free end of the rope was held by an assistant. So long as the rope was loosed, its coils glided freely upon the revolving cylinder; the moment the free end of the rope was tightened, the tierce was raised from the floor. Weights were added in succession, till the tierce just balanced the whole power of the machinery. The weight was eight hundred and thirty-nine pounds. This I am disposed to regard, from the best history I could obtain of the accident, as an approximation to the force employed in the dismembering ope-

ration, and it seems probable that, for a short space of time, the muscles just named, forming the anterior and posterior margins of the axilla, sustained themselves against this immense weight.

Case VI. *Exostosis of the Frontal Bone.*—P. Weeks, æt. 21, consulted me in September, 1837, for a tumour on his forehead, which extended from the nasal process of the frontal bone over the median line to the margin of the hairy scalp. This tumour perfectly hard and immovably attached to the body of the frontal bone, presented itself in the form of an obtuse ridge, its base an inch and a little more in its horizontal, and three inches in its vertical diameter, and its height about three quarters of an inch above the level of the surrounding surface. He remarked that *fourteen* years ago, when tilting upon a board, he fell with his forehead upon a stone; that the wound at the time was slight and soon healed, but that five years afterwards, viz: *nine* years ago, the commencement of the present tumour was observable. Within the last year and a half, he assured me that its enlargement had been very manifest. From its slow growth, its hardness and the absence of pain or soreness, and of cerebral irritation, I was induced to regard it as simple exostosis, and advised its removal.

In October he returned and submitted to the operation. The integuments were divided along its summit and dissected from its sides and base, and a groove cut with a Hey's saw around its base; I then introduced a chisel into the groove, hoping to strike off the whole tumour by a few strokes of a small lignum vitæ mallet an inch and a half in diameter. This I found myself unable to do; the tumour was nearly as solid and hard as ivory. By carrying the chisel twice or three times round the base, and sinking it deeper and deeper by numerous and smart blows of the mallet, I at length succeeded in splitting off most of the tumour in a block. The remaining irregularities were easily chipped away; and shavings of this bony substance which had nearly the compactness and solidity of ivory, were removed in succession by light taps of the mallet, and a sharp cabinet-maker's chisel, till the whole was reduced to the level of the surrounding surface, and was almost as smooth as the natural bone. The integuments were brought together over this surface, and secured by adhesive strips, and the wound was entirely healed in eight days. I find by examining the patient several times since, that the integuments glide freely over the chiselled surface, except along the line of the incision, where the cicatrix adheres so as to admit only of very slight motion.

I have introduced this case partly on account of the extreme hard-

ness and density of the morbid growth, approaching very nearly to that of the most compact ivory, a form of exostosis, which, I presume, must be very rare; and partly with a view to recommend the chisel and mallet as altogether the most useful instruments I have employed in removing bony excrescences. In cases where the pedicle of the tumour is circular and not more than three-quarters of an inch in diameter, and the texture not very compact, the whole mass may be struck off at a single blow.

In a case a few years since,* of exostosis springing from the axillary side of the os humeri near the head,—with tuberous prolongations which embraced more than half of the circumference of the bone, and with one of its protuberances so extensive as to compress the axillary vessels and nerves even to numbness, and an obvious obstruction of the circulation,—on the arm being raised to the horizontal position, I found the mallet and chisel the only efficient instruments I could employ. No kind of saw I have ever seen could have enabled me to accomplish the object, except imperfectly, and at the same time with aggravated and protracted suffering for the patient.

In the hospital of La Charitè, in Paris, I saw the surgeon of that institution remove an exostosis rather less than a hen's egg from beneath the deltoid muscle. Instead of dividing the soft parts over the middle of the tumour, turning them aside out of the way, exposing the whole excrescence to view, striking it off with a few strokes of the chisel and mallet, and occupying but a few moments in the essential part of the operation; he made an incision on each side of the tumour, leaving a segment of the skin and muscle resting upon it; then with the narrow blade of a bow frame saw introduced through the incisions, he proceeded to saw away the tumour. This he at last accomplished after a slow and interrupted operation, accompanied with an agony on the part of the patient, such as I do not remember to have witnessed in any other surgical operation. The suffering continued for some time after the patient was carried to his bed, as indicated by his incessant cries till I left the hospital. This pain may doubtless be explained by a reference to the ordinary course of the circumflex nerve, and its necessary proximity to that part of the tumour which was subjected to the blindfold movement of the teeth of the saw.

* The patient was Dr. Cressy, of Essex county, Massachusetts. The operation was performed nine or ten years ago, and nothing of the disease had reappeared two years since.

Case VII. *Removal by dissection of the entire Shoulder-blade and Collar Bone.*—Nineteen years ago, Mr. Horace Wheeler, then æt. 27, from Randolph, Vermont, consulted me for a bony tumour larger than a hen's egg, involving nearly the whole length of the metacarpal bone of the thumb, and another somewhat less, implicating the distal half of the metacarpal bone of the fore-finger, both upon the right hand. These tumours I removed by disarticulating the metacarpal bone of the thumb from the trapezium, and by sawing that of the fore-finger just below the insertions of its carpal, flexor, and extensor muscles. The wound healed kindly, and there was no appearance afterwards of disease upon any part of the hand.

About two years after this operation, pains were occasionally felt in the forearm, and sometimes extended to the upper arm. These pains, which were denominated rheumatic, continued more or less for eleven years. The last two or three years of this period, as nearly as Mr. W. can recollect, the pain was fixed in the upper part of the arm, and during the last year, the upper half of the arm and the soft parts about the shoulder joint underwent an enlargement so considerable, that the diameter of the limb just below the articulation was about twice the natural size; the integuments were much firmer than natural, and the slightest possible passive motion only, could be given to the joint. During the last two years and upwards, the pain in the arm was most severe at night, and through the cold season especially; the patient could seldom lie in bed, but found some relief and obtained at intervals a short nap, by occupying his chair through the night.

Not in the least relieved under the variety of prescriptions made by several practitioners, and worn down and disheartened by almost incessant pain, he consulted me in the autumn of 1831; and on the 3d of November of that year, that is, about *thirteen* years after the first operation, I amputated the arm at the shoulder joint. The operation was somewhat embarrassed by the induration of the soft parts, and in consequence of their exalted sensibility was very painful. The disease appeared not to have extended to the scapula, the glenoid cavity looking healthy; but the soft parts beneath the acromial half of the clavicle and around the neck of the scapula were a good deal thickened, and the apprehension was expressed to the patient, that, although the wound might heal, the disease might reappear in the neighbourhood. The wound healed readily, and the parts appeared sound; but the ensuing February the stump was attacked by inflammation, terminating in abscess, and in the following August another

abscess discharged spontaneously, and was healed in three weeks. From that time no abscess or ulceration has appeared upon the stump.

After this, Mr. W.'s general health was pretty good, never high, but such as to enable him to attend to some little business, and superintend the concerns of his family, until about the first of October, 1836, *five years* after the amputation. At that time, a dull pain was felt in the shoulder, and from that period the pain increased, fluctuating at intervals, sometimes dull and heavy, sometimes lancinating. The parts about the shoulder began to swell soon after the attack of pain, and like the pain, increased through the ensuing year. Late in the summer, (1837,) Mr. W. consulted me again, but discovered some reluctance and dread at the idea of the remedy I suggested, as the only means, *possibly* of effecting a cure, *probably* only of prolonging life a few years; namely, dissecting away the tumour together with the shoulder blade and collar bone, both of which appeared to be invaded by disease. He went home and put himself under the regimen of a quack steam doctor, who promised to disperse the tumour in a short time. Under the treatment instituted the pain and swelling increased so rapidly that Mr. W., of his own accord, soon abandoned the course, and made up his mind for the operation.

After a preparation of four or five weeks, living chiefly on farinaceous food, with a moderate proportion of milk, he submitted to the operation on the 28th of September, 1837, about six years after the amputation. At this time the tumour was round and prominent, measuring horizontally, over the summit from the anterior to the posterior margin of its base, *fourteen* inches, and vertically from the upper to the lower margin of its base, *ten* inches. A part of the surface, but slightly discoloured, was exquisitely sensitive on pressure; the integuments were tense, thin, and glossy, although they had not yet ulcerated.

An early step in the operation, which was performed in presence of several medical gentlemen, and the autumnal class, consisted in dissecting away the integuments from the clavicle, disjointing it from the sternum, elevating its sternal extremity, and relieving it from the subclavian muscle so as to admit of the finger of an assistant being passed under it to compress the subclavian artery. The subsequent steps of the operation need not all be detailed, as they consisted chiefly in plain, *coarse*, and sometimes rapid dissection. The operation was borne with but very little complaint, and on the removal of the whole mass, the patient appeared comfortable.

The first object was to apply a ligature to the subclavian artery. This vessel was seized and drawn out for that purpose, and just as the ligature was fixed upon it, a slight gurgling noise was heard, and an air

bubble was seen by my friend and colleague Dr. Oliver, as well as by Dr. Hoit and others, in the mouth of the subclavian vein, which must have been divided not far from its union with the jugular. A finger was immediately placed upon the open extremity of this vessel. At this juncture the patient appeared to be struggling under some new and strong impression. He uttered a low groan, his eyes were rolled upwards and fixed, his face and neck were bedewed with a cold sweat, the pulse in the neck, wrist, and heart, was imperceptible; consciousness was gone, and for eight or ten minutes by estimation, all that remained of the visible actions of life was a feeble, slow, abdominal respiratory movement, recurring at very long intervals. Ammonia and camphor were applied to the nostrils and tongue, but without apparent effect. At length the respiration became gradually more natural, the pulse was faintly perceptible, and slowly increased in distinctness, the eyes at last moved, and the patient waked up as from death. The extensive flaps of the wound were immediately put in place and secured by stitches, adhesive strips, compress and roller, and in half an hour the patient was very comfortable.

From that time there was almost no pain, and the immense wound, with flaps of seven or eight inches in extent, united by adhesion, and became consolidated and sound, *literally* without the formation of a *teaspoonful* of pus. There were a few drops only around the ligatures. In less than three weeks, the patient was dismissed and rode home in a stage-coach, between thirty and forty miles, and remained sound and well in November.

The alarming swoon into which Mr. W. fell at the time of the operation, must have been owing, I believe, to the introduction of air into the veins. The symptoms were much like those described by M. Amussat, as having recently taken place in a patient upon his operating table. A very little addition to its disturbing influence, it should seem, must have extinguished life. The uncommon exemption from pain after the operation, and the kind healing of the entire wound without suppuration, I am disposed to attribute to the circumstance of the patient being well prepared for the operation, taking no anodyne or narcotic before or after the operation, and living *exclusively* upon gruel the first ten days, and upon the same thing with the addition of mush and rice, with a small allowance of milk, afterwards during his stay at Hanover.

Here I will remark, that I have had an opportunity of witnessing the effects of severe operations upon patients in the habitual use of opium, and upon those not in the *habit* of taking it, but who took large doses to 'support them' under the operation, and I can have no doubt

that the latter class of patients suffer more pain during the operation, and are unspeakably more uncomfortable for several hours afterwards, than those who take none. Indeed ought not this result to be expected, when the nervous system is compelled to grapple with the influence of a powerful narcotic, in addition to the shock of an operation? Within the last two years I have seen the female breast removed after the lady had been prepared by taking two hundred drops of laudanum. For some hours after, her respiration was greatly agitated, and her sufferings were unusually severe from pain and prostration. As for those in the habitual use of opium, their sufferings, subsequently to a grave operation, are often most intense. I amputated the thigh of a patient who had used opium daily for several years. Soon after the wound was dressed, the pain became acute and increased to a frightful extent. He took an incredible quantity of opium in substance or solution, and it was not until after the lapse of fifteen or sixteen hours, that he was in any considerable degree relieved from his agony. During the healing of the wound, which was slow, he had a great deal of pain, for which he continued to take opium. He was not without pain a day, (as I think he afterwards assured me,) for two months, and did not gain an entire exemption from it until he laid aside the opium altogether, and invigorated his system by a long journey. I have recently performed two amputations of the leg for patients who had taken a considerable quantity of opium daily, the one for two, the other for three months. Both patients suffered intensely in the stump for a long time after the dressings were applied. The patient, a female upwards of sixty years of age, who had taken opium for three months, had the operation performed between eight and nine o'clock in the evening of the 10th of November, 1837. She suffered indescribably through the whole night, and although sulphate of morphia was administered in astonishing doses, so as to prostrate the strength to an alarming degree, and give an idiotic expression to the countenance the following morning, she was still roused to shrieking every few minutes by the severity of the pain. Dr. M'Gregory, the gentleman who had the care of this patient, writes me under date of December 16, 1837,

"Mrs. K. yet lives, but in a low and languishing state. Spasms almost insupportable continued after the amputation of the limb more than a week, after which they gradually diminished, and for a few of the last days they are hardly to be noticed. But pain of the stump yet remains of the severest kind, attended for the last two weeks with emaciation and mental alienation. She probably cannot survive more than a short time. No rest can be procured, unless by morphine; she has been obliged to increase rather than diminish the quantity."

He further remarks, that no part of the wound healed by the first intention, and that there is still a suppurating surface of considerable extent, with an unhealthy discharge. This is by no means remarkable, considering the deeply narcotized state of the constitution ever since the operation.

But to return to the case of Mr. W. The tumour connected with the shoulder blade and collar bone, when opened was found to contain a quantity of thick coloured or glue-like fluid, covered by a cartilaginous mass, in which were small amorphous deposits of bone. A part of the clavicle, and more than three-quarters of the body of the scapula, with its spine, acromion, and coracoid process, exhibit the disease by a degeneration, more or less, of the natural tissue, presenting a coarse spongy texture, with, at some parts, an exuberant growth of bony vegetations.

The following description is from my friend Dr. N. Worcester, who had the care of macerating and cleaning the bones.

"When I cleaned the bones after maceration, I found the jelly-like matter appeared every where in contact with the bony surface, and on the costal side of the scapula appeared to have burrowed under the periosteum, and wherever it existed the bone has taken on the spongy appearance; and where the periosteum was united with the bone, the last appears healthy. I found too, after the bone had been macerated, that what formed the other part of the cavity, which was not bone containing this matter, became hard, and most resembled cartilage, and was attached to the sound bone. Was this thickened periosteum?"

The appearances were similar upon the metacarpal bone of the thumb, and upon the os humeri. This last bone is diseased in its entire diameter and upper half of its length. The whole substance of the bone resembles very coarse sponge, and from the lower point of the diseased part it is regularly enlarged upward to the articulation, presenting a spongy cone with a rounded base, which is three inches and an eighth in diameter, that is, at the head of the bone. The articular surface of the head is still smooth, and remains in the form of a thin convex plate, loosely adherent to the coarse open tissue of the degenerated mass.

The patient is on the look out for another visit from his disease; but should his apprehensions be realized, he has certainly no means of determining what part will be selected for its next location.

Case VIII. *Operation for Enlarged Tongue.*—John E. Hatch, æt. 13 years, was brought to me on the 13th of October, 1837, with hypertrophy of the tongue. His friends asserted, that at the time of

birth his tongue was above the ordinary size; and that at the age of nine months it began to hang out at the mouth.

By accurate admeasurement of the tongue, I found it to present the following dimensions.

From the margin of the upper lip, over the anterior and convex surface of the tongue to its tip, *five and a half inches.* From the same point upon the tip of the tongue to the lower lip, *three inches.* Largest lateral diameter, *two inches and three-quarters.* Largest vertical diameter, *two and a half inches.* Circumference at the largest part, *eight inches.* The anterior part of the lower jaw, during the progressive stages of its growth, had been dragged downwards, so that when the posterior grinders in the upper and lower jaw were in contact, the incisor teeth, projecting almost horizontally, were an inch and a half asunder. In the ordinary state of the mouth, the tongue where it emerged from the teeth and lips, was two inches in its vertical diameter; in fact, at this point, it was almost an exact cylinder, being flattened a little above and below, when the back teeth were brought together. From the great extension of the lower jaw, the bicuspid, cuspid, and incisor teeth were thrown at great distances from each other, and had such an incrustation of tartar, that the cuspid and incisor teeth were about three times their natural diameter. In the ordinary state of the mouth no space existed between the upper lip and tongue, but this frightful organ of speech looked like an immense bougie thrust into the mouth, for the purpose of dilating it to the last extent.

The boy was under size; had a sallow, downcast look; and has never, as his friends say, had very high health. He could articulate many words intelligibly; wore a cloth screen over the tongue; and had a perpetual dribbling of saliva from the mouth. He is said to have enjoyed his pastimes with his playmates, and has been frequently observed in winter sliding upon the ice, with an icicle hanging to his tongue.

In the operation, which was performed after a few days preparation, I chose the plan recommended by Dr. Thomas Harris of Philadelphia. The tongue was first dissected up from the floor of the mouth about three-fourths of an inch; then a sharp-pointed bistoury was plunged through it from below upwards, a little outside of the median line, and carried forward and outward through its lateral margin; the vessels were then tied, and after the other side of the organ was treated in the same way, the narrow isthmus remaining was separated by a scalpel, and the portions of the fork brought together and secured by stitches. The wound healed kindly in a few days.

The removal of the posterior grinders to promote a partial approxi-

mation of the jaws, I deferred till the tongue was healed; but an entire elevation of the lower jaw to its proper level, must be a work of time. This, it may be hoped, will ultimately be accomplished, under the efforts of nature, the tendency of which is to bring wrong things right, to which aid may, perhaps, be given by a bandage long worn, including the chin and the vertex of the head. In three weeks the tongue had lost from a third to half an inch in its vertical diameter; it is still, however, too thick and clumsy, although the power of articulation has been improved by the operation. If in the course of six or eight months, the tongue should not be considerably diminished in its vertical diameter, it is my purpose to remove from it a horizontal wedge-shaped segment, in order to reduce it to convenient dimensions.

Case IX. *Case of Apparently Malignant Disease.*—In Vol. XI. of the New England Medical Journal, published at Boston, I reported a case of encephaloid or medullary tumour, for which I operated in February, 1822. The patient was Dr. Heaton, æt. 51; he discovered the tumour about three months before the operation, of the size of a filbert, or a little larger, just below the left angle of the jaw. The growth of this tumour was so rapid as to have acquired the size of the human fist, in the short period just named. At one point of the tumour there was a prominence which had a pulpy feel; and as the integuments covering this part were thinner and more tense than elsewhere, it was deemed probable that the tumour would, ere long, throw out at this place an intractable fungus. These suspicious appearances, coupled with the rapid progress of the disease, presented an unfavourable prognosis, and it was distinctly stated to the patient, that although an operation might not improbably prolong life, it could hardly be supposed that there was more than one chance in a hundred for a cure. He determined however to submit to the operation, remarking, that if there was one chance in a hundred, he would have it.

As the tumour was deeply imbedded in the neck, the operation was commenced by applying a ligature to the primitive carotid, and then prosecuted by careful dissection till all the diseased mass was removed. The degeneration was confined to the soft parts, although it had been feared that the transverse processes of some of the cervical vertebræ, as well as the hyoid bone, were implicated; the posterior part, or horn of the last named bone, however, with its appropriate muscles projected some way into the cavity made by the removal of the tumour, a portion of which had insinuated itself so far within as partially to enclose the fork of the carotids, as well as some of the branches of the external division of that vessel. The wound healed readily; and the patient,

who had been very temperate in his habits, still lives, enjoying good health, without having had the least indication of the return of the disease. My object in introducing this case here is, to adduce one example of what may now be presumed to be a radical cure of an encephaloid tumour; for I have never in my life seen a more perfectly cerebriform or medullary texture in a morbid growth than in some parts of this tumour.

Case X. *Ligation of both Primitive Carotids.*—To those gentlemen of the profession who felt an interest in the case of J. Pattee, recorded in Vol. V. p. 316, (Feb. 1830,) of this Journal, it may not be unwelcome to learn the sequel. The case was one of a large nævus, of five inches diameter, and two inches height, upon the vertex of the head, which had commenced about two years before, and which, slowly increasing, had bled repeatedly within the last six months, once to the amount of two quarts, as estimated by his physician.

In the autumn of 1827, (the patient being then twenty years of age,) I tied the left, and on the twelfth day after, the right, primitive carotid artery, and followed this operation by the use of an alum lotion, joined with as much permanent compression as the patient could bear, hoping by these means to promote an absorption of the tumour. In four weeks it was reduced by estimation to one-third of its original volume: at this time it appeared to be stationary, but it soon after exhibited a slight pulsatory movement, which, together with the volume of the tumour, rapidly increasing, I proceeded to dissect out the whole mass six weeks after applying a ligature to the second carotid. Notwithstanding the application of about forty ligatures in encircling, step by step, with an incision at the base of the tumour, before dissecting it away, blood, to the amount of nearly two quarts, was lost in the operation. The cicatrix of this extensive wound was tender for some months, and occasionally broke away; but after the lapse of a year, it was firm, and has never since ulcerated, and although it produces no hair, it is now only about one-half of its original diameter.

On the application of a ligature to the second carotid, the patient, although his face was distinctly paler than before, exhibited no signs of a deficient supply of blood to the brain, but walked down two flights of stairs from the operating room, and rode to his lodgings, nearly half a mile, without inconvenience. Most of the time since his recovery, from the operation of removing the tumour, he has enjoyed very good health. Occasionally he has had symptoms of cerebral plethora, indicated by pain or a sense of fulness in the head, and a congestion of

the vessels of the conjunctiva, from which important relief or a speedy cure has been gained by a single bleeding. With the exception of about one year, he has been a hired labourer in my family, since his convalescence from the last operation; and by his intelligence, activity, power of endurance, and fidelity, secures to himself as high wages as any man in the county is able to command.

Fairfield, N. Y., December, 1837.

REVIEWS.

ART. X. *Essai sur la Philosophie Médicale et sur les Généralités de la Clinique Médicale, précédé d'un Résumé Philosophique des principaux Progrès de la Médecine, et suivi d'un parallèle des résultats de la Formule des Saignées coup sur coup avec ceux de l'ancienne méthode, dans le Traitement des Phlegmasies Aigues.* Par J. BOUILLAUD, Professeur de Clinique Mèdicale à la Faculté de Medecine de Paris. Paris, 1836.

An Essay on Medical Philosophy, and on the Generalities of Clinical Medicine, &c. By J. BOUILLAUD, &c.

The object of the author in the above work, is "to impress upon the study of medicine that character of *precision* which is absolutely essential to all true science, and to give to it the direction generally followed in the physical sciences properly so called." When we consider the unsettled state of medical opinion, the conflicting theories and hypotheses which are afloat, the advances which have been made of late years in many departments, and the active spirit of research and observation so evidently characteristic of many minds at the present day, it is manifest that an investigation of the principles upon which those researches should be conducted, is of the highest importance. These very principles, too, are the subject of much difference of opinion at the present time, when the loosest generalization and the most narrow-minded adherence to the facts which are directly received by the senses, equally find their advocates. We participate then in the sentiment of our author, that a treatise on medical philosophy is a great desideratum in medical literature,—one which our age is called upon to supply. The present work is, as stated in the title page, a mere essay towards this, the author not pretending to any thing more than to take a general view of the prominent points connected with the subject, leaving to future writers the task of investigating them more in detail. He laments the unfortunate destiny which is reserved for every work of this kind, a destiny resulting partly from the exciting nature of the subject, and partly from the personal questions which are almost necessarily involved when it is freely discussed. That this is true, as regards the French capital, we have no doubt. There medical men are divided into coteries, whose members are held together by a more or less perfect similarity of views upon certain great and leading questions. Each of these has its presiding divinity, who is, before the world, the responsible representative of its principles. The latter being attacked, the former is at once in arms; the dignity of the presiding divinity has been insulted. Rancorous and personal war-

fare follows, in which angry feeling, pride and a regard for true principles are variously blended. Remote, however, as we are in this country from the arena in which the combatants are engaged, we can look on dispassionately, and examine with calmness the principles involved. "Generous spirits," says our author, "have, in medicine as elsewhere, hoisted the standard of conciliation. But how can we conciliate for any length of time principles which are essentially opposite." This is most certainly true of the principles but not of the disputants. A just and philosophic diffidence of our own opinion, and a proper conception of what is due to the feelings and views of others, would, no doubt, if acted upon, prevent those hostile feelings arising from mere differences of opinion. But as it is easier to preach than to practice, we will not pursue the subject farther.

Prof. Bouillaud fully admits that medicine is a science of observation, and that a portion of its phenomena are to be investigated in precisely the same way as those of natural philosophy and chemistry; that is, that we are to observe them, to determine their laws, and from these endeavour to arrive at a knowledge of the forces which govern them. With reference to another portion of phenomena, however, those of animal life, or the life of relation, he remarks that we become acquainted with them in ourselves through the medium of internal observation or consciousness, and that in studying them in others we are obliged to call in the assistance of the various modes of expression, and of interrogation. He might have added, too, that even with reference to the first class of phenomena, or those which strictly fall under the cognisance of the external senses, we are often obliged to depend upon the testimony of others, mostly of our patients. Now, the value of this testimony depends upon the more or less correct exercise on their part of memory, internal consciousness and sensation, so that it is hence evident at the outset, how much more difficult it is in medicine to arrive at a knowledge of individual facts, than in the other branches of physical science.

The work is divided into four parts. The first contains an outline of the history of medicine; the second, the principles of medical philosophy; the third, general remarks in reference to clinical medicine; and the fourth, a statistical comparison between the treatment of acute inflammation adopted by the author and that generally in use.

In the first part, the author gives a very slight sketch of some of the prominent parts of medical history, and especially of the fundamental principles of the different schools which successively exerted their sway over medical opinion and practice, from the earliest period up to the time of Bichat and Pinel. To the former writer belongs the credit of having established the science of general anatomy; and his views in relation to physiology and pathology are examined somewhat in detail. These are based upon the doctrine of Stahl, who attributed all vital phenomena to a single force which he called the soul. Bichat, however, disregarding the idea of one general principle, endeavours to analyze the vital properties, and finally arrives at the conclusion that

all vital phenomena are owing to different forms of sensibility and contractility. Prof. Bouillaud, whilst awarding to him the credit of having decidedly advanced the doctrine of vitalism, as professed by Stahl, accuses him of having fallen into many errors, and especially of having entirely lost sight of chemical and mechanical forces in the analysis which he has made of those which govern the phenomena of organized bodies. There is doubtless some truth in this reproach, but it is perhaps exaggerated; because the properties of unorganized matter play but a secondary part, and are, strictly speaking, accessary in the production of vital phenomena.

The school of Pinel is next spoken of. The critical remarks of Prof. B. upon the writings of this eminent man have reference chiefly to his doctrine of the essentiality of fevers, in which, however, he is inclined to think that Pinel himself was not a firm believer. He even goes so far as to assert, upon the authority of Rostan, that Pinel was induced to treat of fevers in this way by the advice of his bookseller, who inspired him with fear that his book would be unsuccessful, and that he would incur the hatred of his compatriots should he adopt a different plan. That such considerations could have materially influenced the mind of such a man as Pinel, whose work for a long time exercised a powerful influence upon medical opinion, and which went through six editions in twenty years, seems wholly improbable. Besides, his real views must have been known to some of his medical brethren, and had he dared to publish opinions opposed to those which he really entertained, he must have incurred their contempt, and laid himself open, during his life time, to accusations which no one, we believe, ever preferred against him. Notwithstanding the insinuation just noticed, our author avows that his *Nosographie Philosophique* is the most beautiful monument which had at that time been raised to medical science, and that its author was worthy of being proclaimed the legislator and prince of the medical era in which he lived, as well on account of the nobleness of his character as the extent of his philosophical views, the depth of his genius as an observer, &c. The eulogium and the insinuation seem to be irreconcilable, and we cannot help thinking that Prof. Bouillaud, in the height of his enthusiasm for the doctrine of the non-essentiality of fevers, has been betrayed into injustice in reference to one of its firmest opposers.

The decline of the system of Pinel is next noticed. Of the works published in the early part of this century, which militated most against his doctrines, and especially his doctrine of fevers, that of Prost was one of the most important. This physician devoted himself with untiring industry to the investigation of the organic lesions which occur in different diseases, and especially those which are found in the mucous membrane of the intestines. He announced the doctrine, that the mucous membrane of the alimentary canal plays a most important part in the production of the phenomena of certain idiopathic fevers. He even attributed these to the inflammation of this membrane as a cause, and went so far as to state that in ataxic fevers, the brain was not really the seat of the disorder, but, on the contrary,

the mucous lining of the intestines, which was in a state of inflammation. Prof. Bouillaud says, that Prost's work was the commencement of the revolution (that of Broussais) which ten years later was to destroy the whole edifice of medicine. The work of Petit and Serres, published in 1813, also tended to show that certain alterations of the mucous lining of the intestines were the cause of a fever which they called entero-mesenteric, and which they thought was distinct from the ataxic and adynamic fevers of Pinel. The doctrine of the essential nature of fevers at that time in vogue was attacked by other writers also, and finally, in 1816, appeared the *examen* of M. Broussais, a writer whom our author terms the medical Messiah who was to accomplish the regeneration of our science. He gives us a sketch of some of the prominent doctrines of this celebrated man, and makes numerous extracts from his works. We shall notice cursorily the most striking features presented.

Broussais reproaches his predecessors, and especially Pinel, with having distributed arbitrarily the external signs of the affections of our organs into a number of groups, which were pure abstractions, under the name of diseases, and which do not represent the condition of the suffering organs. This was undoubtedly just as regards fevers, and perhaps some other affections; for Pinel divided the former into five groups, which are now known to constitute one disease, viz: typhoid fever. Few, we imagine, would be disposed to deny the propriety of so classifying diseases, as that the various groups of symptoms should, severally, be the representatives of a morbid state, of which one uniform lesion constitutes the principal element. But if it should be asserted that a certain train of deranged functions of an organ are always indicative of a uniform morbid state of it, this, though perhaps true as an abstract proposition, yet, when applied to the investigation of disease, it is calculated to lead into gross errors. It does so because when the disordered functions of an organ are viewed separately, and to a certain extent independently of the whole train of morbid phenomena constituting what we commonly call a disease, they cannot, in many cases, be made with any certainty the interpreters of the condition of the organ to which they belong. Thus, for instance, in typhoid fever some of the symptoms referrible to the brain are occasionally of such a character as would lead any one to suppose that that organ was the seat of acute inflammation, provided that he were not aware of the nature of the principal affection. We recollect a most remarkable instance of this kind in the wards of M. Andral, in which the delirium, convulsion, dilatation of the pupil, &c. would naturally have led to the supposition of inflammation and effusion on the brain; and yet, upon dissection, the latter organ was found perfectly healthy, whilst the glands of Peyer presented the usual alterations. How would it have been possible to have properly interpreted the above symptoms, unless we had regarded them not merely as connected with the organ to which they physiologically belonged, but also with *the disease* of which they formed a part.

Whether we view the condition of the brain in the above instance

as the result of sympathy, or the direct effect of an altered condition of the blood, is altogether unimportant; for in either case it seems to us perfectly clear that the symptoms spoken of could never be properly appreciated, except in connexion with the *disease*, the entity typhoid fever, of which the condition of the brain giving rise to them is one of the elements. Broussais, it is true, regards the cerebral symptoms of the disease as indicating inflammation of that organ; but that this is an error, is now incontestably proved, because in the immense majority of cases, post-mortem examination gives no evidence of inflammation.

Mr. Bouillaud continues:

"The point on which the whole system of Broussais in some sort turns, his fundamental principle, &c. is, that medicine should be based on anatomy and physiology."—p. 73.

The correctness of this proposition we shall not undertake at present to examine. We would merely observe that our knowledge of the mechanism of the healthy vital actions, especially the molecular actions, is as yet too imperfect for physiology to be constituted the basis of the fabric of medicine.

Our author proceeding in his analysis of the new doctrine makes numerous extracts from the writings of its founder, for the purpose of setting forth his views in relation to fevers and organic lesions.

"The denial of the essentiality of fevers and their localization in the digestive tube, under the title of *acute inflammation* of the mucous or follicular membrane of the apparatus, is undoubtedly one of the most capital propositions of the new doctrine."—p. 74.

If we except a few cases of intermittents, almost the only fever observed in Paris is that now known under the name of typhoid. Consequently it is upon the phenomena of this disease that the discussions of French writers in relation to the nature of fevers principally turn. Modern investigations have incontestably established that this fever is universally characterized by a permanent lesion of the glands of Peyer; but many authors, and especially M. Chomel, think that this lesion is secondary, and may be compared to the bubo in plague or the pustules in small pox. For the grounds of this opinion we would refer our readers to the clinique of M. Chomel, recently published. M. Littré, too, in a late article in the *Dictionnaire de Medecine*, says, "that the division of fevers into essential and symptomatic is perfectly just, and that it is an error of several modern writers to have neglected it." He looks upon continued fevers as a class of diseases totally distinct from phlegmasia, and which consist of two parallel orders; the one characterized by lesions of the cutaneous envelope, and the other by lesions of the mucous lining. Under these circumstances, and recollecting, too, that typhoid fever, and perhaps the plague, are the only continued idiopathic fevers, except the exanthemata, in which the existence of a permanent local lesion at all partaking of the character of inflammation is generally admitted as proved, it strikes us as incorrect in Prof. Bouillaud to speak of the grand doctrine of the localization of fevers as an indubitable scientific

truth. He admits, too, (in his lectures,) that the nature of exanthematous fevers is totally incomprehensible, and that it is futile to talk of there being symptomatic of local inflammations. In concluding his sketch of the doctrines of Broussais he speaks as follows:

"I cannot say what will be the definite judgment of posterity relative to what is known under the title of the doctrine of irritation, but one may undertake to predict, without being a very great prophet, 1st. That the localization of fevers, known as continued essential fevers, and their introduction into the class of phlegmasiæ; that the doctrine which refers to chronic inflammation various organic alterations previously regarded as morbid conditions altogether distinct from those described under the name of phlegmasiæ; 2nd. That the simplification of the treatment of fevers, and of several diseases formerly comprised in the class of organic lesions and of the neuroses; 3d. That the substitution of the antiphlogistic to the tonic, stimulant, incendiary method, in the treatment of fevers called adynamic and ataxic, one may predict, I repeat, that these three grand ideas insure to him who conceived them and procured their adoption, an eternal glory."—p. 84.

Without wishing to abstract any thing from the glory justly due to M. Broussais, we must say, in reference to the first proposition, that even supposing that typhoid fever is, strictly speaking, symptomatic of an inflammation of the glands of Peyer, it would still be unfair to attribute to him the credit of having *established* the local origin of this fever, inasmuch as he referred the disease to a gastro-enteritis which, in fact, does not exist, the lesion of the Peyerian glands being altogether distinct from a general inflammation of the mucous membrane of the small intestine. Moreover, this lesion was better understood by Prost and other writers anterior to the time of Broussais than by the latter author, and it is only by the investigation of subsequent writers that it has been completely elucidated.

Our remarks upon this subject have, perhaps, been extended too far, but we have been led into it from the tone assumed by Prof. Bouillaud towards some of his cotemporaries who are opposed to him in opinion on most of the questions above-mentioned. His manner of expressing himself is far from being conciliatory, and although he is forced occasionally to acknowledge the services which they have rendered to our science, he by no means renders them full justice.

Laennec is next spoken of. Prof. Bouillaud, at the same time that he gives him great credit for the discovery of auscultation, criticises him in no very measured terms for his opposition to the physiological doctrine. Our author himself appears not wholly exempt from that party feeling of which he accuses Laennec, and which leads him to take a prejudiced view of the character of his opponents. However, he speaks of him in high terms as the inventor of auscultation, and says, that "after M. Broussais he is incontestably the most illustrious physician of the era in which he lived."

In his observations upon the present state of the science, Prof. B. congratulates the profession upon the advanced state of pathology and diagnosis, the influence of which has also extended to therapeutics. In relation to the observation and collection of particular cases of disease, he remarks:

"One of the most prominent characteristics of the present era, is the having, in fact, singularly perfected both the art of observing and recording particular cases, and the art of making, in some sort, the *statistics* of cases collected in greater or less number. I merely notice this latter point, to which I shall be obliged to recur in the second part of this essay, when I shall treat of it with all the detail which its importance demands."—p. 96.

In the previous paragraph he had said, in speaking of M. Lallemand, that "the art of analysing particular cases, of considering them in every point of view, owes much to this profound observer." This we are not disposed to deny; but the remark, introduced as it is, and without the mention of any other name, is calculated to convey the impression that M. Lallemand took the lead in this point. It can hardly be supposed that Prof. Bouillaud would undertake unequivocally to assert this, and it seems to us like an indirect method of detracting from the credit justly and more especially due to others. To show that our remark is in no degree forced, we would beg the reader to observe in the paragraph above-noticed, that the word *statistics* of cases is marked in Italics, and every one knows that the statistics of medical cases and the name of M. Louis are inseparably connected. Yet his name is not mentioned, and we are left to infer that to M. Lallemand is due the principal credit. This sort of injustice, especially towards M. Louis, has been carried to an extreme in the work before us.

Next come a few general reflections upon the spirit of the revolution in medicine, and upon the circumstances connected with its advancement; and the first part concludes with a short account of the history of clinical medicine. It was the practice in early times for physicians to take with them some of their pupils when visiting their patients; but nothing which could properly be styled clinical instruction existed until of late years. Some attribute its origin to Le Boé of Leyden; others date its commencement anterior to this period; but however this may be, it is certain that it was not much in vogue until the time of Boerhaave, by whose pupils were established the famous clinical schools of Vienna and Edinburgh. That of Vienna was established in 1753, under the auspices of Maria Theresa, by Van Swieten. It was in this school, and in the pursuit of this branch of medical instruction, that Dehaen, Stohl, and Hildenbrand acquired their great reputation. Medicine, in fact, being a science of observation, it is clear that no great degree of excellence can be attained by its cultivators, except they devote themselves systematically to a rigid and long continued observation of disease, which can only be well accomplished in a hospital.

Clinical instruction did not exist in France till long after its establishment in Germany. It was only in fact towards the conclusion of the last century that it was introduced into the former country; which now, however, stands unrivalled in this respect.

"The example set by the first professors of clinical medicine," says Prof. B., "has borne abundant fruit. Paris is, undoubtedly, at the present day, the classical city of clinical instruction; in this respect, as in so many others, the capital of France is truly the queen of the world. It is not merely the professors of the faculty, but also the hospital physicians and surgeons, unconnected with this

faculty, who pour out to pupils the inexhaustible stores of clinical instruction. This instruction assumes there, so to speak, every form: clinical courses on medicine and surgery in general; clinical courses on each of the special branches of the great medico-chirurgical tree; clinical courses upon diseases peculiar to different ages. This is what is found in Paris, and what is found nowhere else."—p. 117.

This subject has recently excited attention in our own country, and clinical medicine is already beginning in this city at least, and perhaps elsewhere, to be pursued with some success. But still with us it is as yet in its infancy, and we ought not to be offended at the term; but looking to European institutions as our models, we should endeavour to build up similar edifices.

The second part of the work before us is devoted to the consideration of the principles of medical philosophy, or the method in which the science should be pursued. The means to be employed are twofold, viz: observation and induction or reasoning. The former is first treated of, and in reference to it we are told that phenomena are perceived either through the medium of the external senses, or of internal consciousness. A sketch is then given of the objects to which the external senses are directed, the instruments by which they may be assisted, as the microscope, &c.; and also of the various methods to be made use of, as mensuration, weighing, auscultation, percussion, &c.

"External observation is the mediate or immediate application of one or several of our senses to the investigation of the properties and phenomena of bodies. It is the true torch of the human mind in every thing which belongs to the study of the physical and chemical sciences properly so called. * * * * * * In order that the senses should properly and accurately take cognisance of phenomena, it is not only necessary that they should be well organized, there are two other fundamental conditions, viz: attention and education. * * * * * * The education, or culture of the senses, is obtained by habitual exercise: they acquire by long and frequent exercise a delicacy, and so to speak, a tact, which is truly marvellous. It is true that by the exercise of which we are speaking, the spirit of observation is peculiarly developed and perfected; and it is here, perhaps, much more than in the developement of the senses themselves, that we must look for the secret of that wonderful sagacity with which great observers seize phenomena which are hid from the eyes of the vulgar."—pp. 128–130.

Our author then is not one of those who regard the observation of medical cases as an affair of secondary importance, which is to be entrusted to the mere tyro in medicine, who has had little or no practical acquaintance with disease.

As regards those phenomena which we become aware of in ourselves through the medium of internal consciousness, such as the sensations, moral and intellectual phenomena, &c. we discover them in others only through the medium "of the various modes of expression, and especially of language." Here are sources of error which do not belong to the previous method of observation, and against which the physician cannot be too much upon his guard. Wilful misrepresentations, on the part of our patients, is the smallest source of those errors, which arise mainly from inattention, deficient memory, prejudices, &c. on their part.

Considerable space is devoted to an exposition of the proper method of recording cases.

"Since it is perfectly true that individual cases or facts are, as we have said, the ground work of medicine, the basis of all the ulterior operations on which the understanding is employed for the erection of the medical edifice, the importance of the art of collecting particular facts, or cases, is sufficiently clear. * * * * *

"In order that a case should be well taken, it is necessary that it should be an exact and faithful representation; a sort of portrait of the condition of the patient at the different periods of the disease, simple or complicated, with which he has been affected. * * * * *

"Sydenham has insisted strongly upon the necessity of omitting nothing in this respect, not even the slightest details; 'in the same way,' says he, 'as a skilful painter preserves in his picture the stains and spots of the original.'"—pp. 140–143.

A formula is given, according to which a case ought to be drawn up, in which are noticed the various circumstances to which the observer's attention should be directed, and what is highly important also, the order in which they should succeed one another. It is unnecessary to enter into the details of this formula, as it is a mere transcript of the method adopted by the most eminent observers of the present day.

The third chapter is occupied with reflections upon the application of theories, systems, and logical induction to medical facts. After having said that, psychology apart, we must proceed in the study of medical phenomena precisely as we would in those of the physical sciences, properly so called, he observes:

"Now, if it is true and universally recognised, that in the physical sciences, properly so called, facts should be explained, interpreted, and theorized upon, it is natural to ask how it happens, that medical men, otherwise endowed with the highest intellectual qualities, have professed that explanations and theories should be banished from medicine?"—p. 141.

Laennec is then mentioned as one of the most illustrious modern physicians opposed to theories and systems in general. Next follows a criticism of the views of Bayle and Chomel, which are contrasted with those promulgated by Bichat, Broussais, &c. upon the same subject. This is one of the most unsatisfactory parts of the book before us. Our author has confounded in his criticism speculative systems with legitimate inductions and generalizations. In this way, the first-mentioned authors are held up to view, not merely as the opposers of the former, but of the latter; which is altogether unjust. Thus a passage is quoted from M. Chomel in which he says that the only foundations of medicine are observation, experience, and *simple and natural reasoning;* that systems are foreign to it, &c. But, by a reference to the preceding sentence of the quotation, it will be seen what sort of systems Chomel alluded to, viz: the speculative systems which have succeeded one another at different periods. Whoever will read the works of Laennec and Chomel will, we think, be soon convinced that their views upon this subject are exactly similar to those expressed by Broussais in the following paragraph, which is quoted in opposition to them.

"Facts are barren when collected without order, or brought together without motive. But, if you arrange them according to their degree of analogy; if you interrogate them separately, after the example of the immortal Morgagni; if you oblige them mutually to elucidate one another, your eyes will be soon struck by an unexpected light, and the horizon of science expand to your view." —p. 165.

The true sin of Chomel and others is, that they were opponents of some of the fundamental doctrines of Broussais, and especially of his great doctrine, that fevers and what are commonly called organic diseases, are the results of local irritation or inflammation.

Of the propriety of applying what he calls the spirit of theory to facts in medicine, or in other words, of analyzing and comparing them, and deducing general principles, we should suppose there could be no question. The points to be settled are, how this reasoning process is to be applied, and how far it can at present be carried. It is not a question about this or the other medical doctrine, but a general philosophical inquiry, applicable to all doctrines, and it should have been so discussed.

However, having settled that a theoretical spirit is to be brought to bear upon the facts of medicine, he proceeds to consider its application more in detail, and acquaints us first of all with the various modes in which it operates. As he here gives us to understand more definitively what he means by the spirit of theory, we shall extract the portion to which we allude.

"To decompose complicated phenomena and facts; to reduce them to their constituent or generative elements (analysis); to combine simple facts and phenomena, and from them form compound facts (synthesis); to investigate and determine the chain of causation which connects certain facts and phenomena to others; to discuss particular observations and experiments, and generalize them, or form them into general propositions; to determine the laws which govern individual cases; to arrange them and connect them together methodically, or systematize them; these are the modes adopted by the mind, and, so to speak, by the *intellectual* and *rational senses* to complete the work of the *observing senses*, and to transform into a regular edifice the scattered materials which the latter had collected."—p. 177.

The above proposition, in its general tenor, seems incontestable; and probably neither Laennec nor Chomel would object to it. Our author proceeds to inform us how we are to apply the methods just enumerated; first, to the discussion of the histories of particular cases of disease.

"When an individual history of disease," he observes, "has been fully and accurately recorded, the mind of the observer endeavours to ascertain what are the influences which have caused the disease; how these causes have operated in the production of the latter; what are the relations between the lesion of the organic actions or condition, and the symptoms which manifest themselves; what are the effects—the results of the different means employed for the cure of the disease. If he is acquainted with facts similar to those which he has collected, he adds it to the list; if the case, on the contrary, is not analogous to others, he places it by itself."—p. 178.

Then follows their application to general collections of particular facts. One of the most important modes of accomplishing this is by what is now commonly known as the numerical method, the merits

of which are pretty fully discussed. This method, as applied to medicine, was first fully appreciated and carried out by M. Louis. We might even go farther, and say that its extensive application was first conceived by him. At any rate, the credit of having adopted it, and introduced it into medicine, as a method of extensive application in the comparison of every species of fact, is as much due to him as the discovery of auscultation is to Laennec. For the partial application of statistics previous to the time of Louis bears just about the same proportion to the numerical system, as developed by him, as the vague conceptions of preceding authors in relation to the physical exploration of the chest do to the luminous discoveries of Laennec. Where shall we find a work in medicine, previous to the publication of the *Rechérches sur la Phthisie*, which is based upon this system, or presents even such an approach to it as that it could, with any sort of propriety, be ranked in the same class? It cannot be found. The views developed in the writing of Louis, relative to the mode in which medicine should be investigated, will, we believe, make them to be regarded hereafter as constituting an era in medical science. We do not wish to run into eulogy, or have it supposed that we look upon M. Louis as the oracle of the day, to whom all must bow: we are very far from agreeing with him in all his views; but cannot, at the same time, help raising our feeble voice against the marked injustice which is done him by Prof. Bouillaud, who speaks of him, and that incidentally, merely as one of the most zealous partisans of the system in question.

Prof. Bouillaud is a firm advocate of the numerical method,—although evidently it did not enter into his calculation at the time he published his treatise on fevers,—and he exposes its advantages and claims to attention with considerable force and clearness. He admits that under its influence we shall see "a host of assertions disappear like vain phantoms," and observes that

"There is no part of the science of medicine in which we do not meet with question of quantity, of more and less, and which consequently on very many occasions, can only be cleared up by means of calculation. How, for example, are we to resolve problems relative to the duration of diseases, to the mortality, without having recourse to the arithmetical or numerical method? How, unless by the application of the same method, can we decide questions relative to the frequency of a disease, according to the seasons, climate, age, sex, temperament, &c. &c.? How, without calculation, determine which of two or more rival therapeutical methods, is the one which cures the greatest number of patients, &c. &c.? It is because they neglected the rigorous employment of the luminous system in question, that our predecessors left so much vagueness and uncertainty in the most important questions of medical statistics."—p. 186.

Prof. Bouillaud might have added to these, the relative frequency of symptoms, their duration, their period of commencement compared with other symptoms, or with the origin of the disease, as well as various points of connexion between symptoms and pathological lesions, since by means of this knowledge we are frequently enabled to arrive at the most interesting results, either of a negative or posi-

tive character, many of them unattainable in any other way. Thus, as an example of the application of this method, we might mention that Prof. Bouillaud published, some years ago, a memoir, in which he thought he had proved that the anterior extremity of each hemisphere of the brain presides over the faculty of speech. Now, M. Andral, in the last edition of the 5th Vol. of his *Clinique Médicale*, has brought together thirty-seven cases observed by himself or others, in which one or both of the anterior lobes of the brain were the seat of hemorrhages or other lesions. Of these thirty-seven cases, twenty-one lost the power of speech, and sixteen did not. On the other hand, he has collected together fourteen cases in which the power of speech was lost, and where *no alteration* was found in the anterior lobes of the brain. Hence he concludes that loss of speech is not a necessary consequence of the lesion of the anterior lobes, and besides that it is found in cases where anatomy discovers to us no alteration in them whatever. M. Andral is careful not to push his conclusion so far as to deny unequivocally the supposed connexion between the anterior lobes and the faculty of speech, no doubt because he could not be sure that the above-mentioned cases had been observed with sufficient accuracy and detail to justify him in regarding such a conclusion as established, although they might render it very probable. We have cited this merely as an instance of the mode in which the numerical method is applied, and also to show that the latter is not confined merely to a few general questions, such as the influence of age, sex, &c. upon the course of diseases, but is applicable to the comparison of symptoms with pathological lesions, and as we may hence readily perceive, to the great mass of medical questions. The numerical system is, in fact, to the physician, very much what practical analysis is to the chemist; it enables him to isolate phenomena, and to view them in a great measure independently of the thousand perturbating influences and complications which exist in any individual case of disease, as it is presented to our observation. By multiplying cases and taking the mean in reference to any one phenomenon, the effects of foreign influence are reciprocally destroyed. It gives to us accurate and positive data, frequently unattainable in any other way, from which we may proceed in our reasoning with a feeling of certainty and satisfaction. Doubts are dissipated and certainty substituted in its place; written records, whose value is determinable, supply the place of vague recollection; facts are separated from opinions. It should not be forgotten that the numerical method, strictly speaking, merely serves to determine data, from which our inductions are to be made. In order that the latter should be correct, many precautions must be observed in reference to the character of the former. We cannot enter into the details of these here, and would refer those who wish to investigate the matter further, to the volume before us, and especially to an essay of M. Louis, published in the first volume of the Transactions of the Medical Society of Paris.

Prof. Bouillaud is a firm advocate of the propriety and necessity of applying this system extensively to medicine. He adduces in sup-

port of it the evidence of La Place, by whom the calculation of probabilities has been applied to the complicated questions of morals and politics. He is on numerous points opposed to the gentlemen who have been principally instrumental in promulgating and enforcing the adoption of it in medicine, and it is therefore the more gratifying to find him in a true philosophical spirit, coming out as its supporter. Such a mind as his, in fact, could not fail to appreciate its value, after having once given it a full consideration. It is in its application to the solution of therapeutical problems that it has been especially objected to, and for this reason he directs his attention especially to the exposition of its advantages in this particular. He says,

"In fine, whoever appeals to experience to settle a therapeutical question, makes, unconsciously, perhaps, an appeal to the numerical method, since without the latter, experience is necessarily deficient in precision, and so to speak, in laws."—p. 192. Again,

"The great objection which may be made to the numerical method, is that it does not operate upon perfectly similar cases. But it is evident that this objection is applicable in all its force, and in all its fulness, to practice, unaided by figures. In fact, to him who tells you he has cured more frequently, as well as to him who tells you the exact number of his successful cases, we may equally make the objection that the cases were not the same. This objection being common to *vague* experience, and to experience enlightened by figures, falls, as it were, of itself.

"It is quite true, that in practice, we never find two cases perfectly identical, just as we never find two men perfectly alike. But is this a sufficient reason why we should not employ calculation in therapeutics, and draw from a collection of facts conclusions which will be applicable to other facts of the same kind? If it were so, experience would be a word devoid of meaning, and therapeutics would forever float in uncertainty. Happily this is not the way in which diseases pursue their course. The sum of resemblances between two long and equal series of cases relative to one and the same disease far outweighs that of their differences, and consequently we can conclude from one to the other."—pp. 192–193.

Having made us acquainted, however, with the importance of taking into account the various circumstances which may modify a particular disease, as its severity, the length of time which may have elapsed since its commencement, the age, sex, constitution of the patient, &c. he concludes with a long extract from Louis in reply to those who object to the method in question, in which he endeavours to show that it is no more necessary, in order to form a comparison between two series of cases, that the individuals composing them should be in every respect perfectly identical, than that all the leaves of a tree should be precisely of the same size, colour, thickness, &c. in order that we may be enabled to give a general description applicable to every one of them. Before leaving this subject, we would observe that the employment of the numerical system, as it is called, does not preclude the use of other modes of arriving at general results. It, in fact, merely furnishes the data on which our reasonings and inductions are to be founded. It renders the conclusions of the latter more certain however, by supplying a broader and more solid foundation on which to

build them. If some of its supporters appear to be opposed to theories, it is not that such opposition is a necessary consequence of the system spoken of, or that they are really opposed to them in principle; but that seeing the impossibility, in the present state of our science, of establishing any general doctrine of medicine, for want of a sufficient number of positive data, they are disposed, for the present, to abandon all general theory, since it must necessarily be, more or less, a work of the imagination. An opposition to theory in medicine, and that too a general one, is altogether unphilosophical, and utterly inconsistent with any great grasp of mind or extensiveness of view. To hear the remarks which are occasionally made about Louis, and the system of Louis, we might suppose that he was the merest plodder in facts that could well be conceived, and that his chief credit consisted in his recording long and accurate histories of disease. Those, doubtless, are not to be despised, and in their greatest degree of perfection, are not to be compassed by men of ordinary minds; for the perfection of a case consists, to a great degree, in the bringing out, so to speak, of its strong points, and in the arrangement of its different parts in such a way that they shall bear to one another their natural proportion. Neither does his reputation altogether depend upon the general and important results which he has obtained from the philosophical analysis of his cases, although these are sufficient to ensure imperishable renown. But his greatest claim upon our admiration, arises from his having first fully appreciated and carried out the numerical system, in its application to medicine. Returning to Paris at a time when the medical mind was much excited, he perceived that the facts in possession of the profession were too meagre to admit of determining, through their means, the questions which divided medical opinion. He saw too that what were called facts, were not, in all probability at least, really such, and could not serve as the basis of a philosophical system. In this state of things he had the genius to conceive, and the ability, to a certain extent, to carry out a great plan for the establishment of a better foundation on which to raise the superstructure of medicine. To accomplish his great object, he buried himself for several years in the wards of a hospital, observing disease day and night, avoiding all amusements, and, to a great extent, the society of his friends, and this too in the prime of life, and subjected almost to the scorn of his fellow practitioners, who laughed at his projects. The results, however, have verified the correctness of his view, and will entitle him to a place amongst the brightest luminaries in the temple of science.

The demonstration of medical truth, and the degree of certainty attainable in medical questions, is the subject of the next article. He says that there is at present much of our knowledge in medicine which has acquired a high degree of certainty; and that if generally there is more uncertainty in it than in the other branches of natural history, it is because it is more complicated, and also because its philosophy is but just beginning to acquire precision and exactness. He goes on to observe,

"However this may be, medicine, as a science founded upon observation and experiment, employs in order to arrive at truth, the same processes and methods as other sciences belonging to the same category, viz: direct demonstration, or that of facts, and indirect demonstration, or that of induction and analogy. If, in certain cases, we arrive through the medium of hypothesis, at the discovery of truth in medicine, as in some other sciences, it is only when those hypotheses are themselves founded upon facts, or at least upon incontestable principles of logic.

"Demonstration by facts is, of all others, the only one which cannot be resisted by sound minds, the only one which possesses *really the force of law;* and the assertions of pure induction, those especially into which hypotheses enter as elements, do not definitively acquire the right of being ranked among the number of incontestable truths, until they shall have been confirmed by positive facts."—p. 203.

Neglecting some slight inaccuracies of language and inconsistencies of expression, we cheerfully subscribe to the general opinions expressed in the above paragraphs.

Our author proceeds to observe that we must not "effect an absolute contempt for assertions founded upon induction," which although it may sometimes have led into error, is not to be abandoned. One would suppose that he was fighting against an opponent of his own creation, for it is inconceivable that any one should despise induction without despising himself. The question is not, whether induction is to be employed at all in medicine, but how it is to be employed, and under what circumstances, and within what limits. But instead of a philosophical inquiry into these points, he enters at once into a criticism of some of his cotemporaries, which although sometimes amusing and even witty, is far from being just. It does not seem to elucidate principles, but rather to involve them and introduce confusion, for the same word is not always used by the different authors criticised in precisely the same sense. Prof. B. instead of endeavouring to arrive at their real meaning, has made use of the circumstance mentioned, to hold them up as supporters of what they do not approve. Besides, his own views on the subject do not appear to be very clear, and he does not sufficiently define his meaning to render his remarks of much practical value.

The fifth article is occupied with reflections upon the *sources of error* in medicine. These are two-fold; viz: errors of fact and errors of theory or explanation. The great extent and variety of the facts which we are called upon to appreciate, their complexity, the inattention of physicians in observing them, the neglect of some important organ, the want of knowledge of the various methods of exploration, &c. are so many fertile causes of the first class of errors. Those of the second class, we are told, may derive from the first, or they may be the result of sophistry, of false induction, &c.

"Of all the errors of theory which infect medicine, the most common proceed from this—that reasonings are founded upon a false principle and upon false data."

As usual, he proceeds at once to criticise; and with it the remainder of the article is occupied. M. Chomel is the sole subject of it.

This physician, who was but just before held up as enemy of all induction, is now presented to us as the author of a "captious argumentation," which is "very specious at first sight, and conducted with so much art that it would, necessarily, notwithstanding the contradictions with which it abounds, notwithstanding the instability of the greater part of its fundamental principles, seduce a certain number of readers." This specious argumentation is contained in an extract of several pages from the late work of Chomel on typhoid fever, where he endeavours to show that this disease does not essentially consist in the intestinal lesion which characterizes it, viz: the inflammation of the follicles and mesenteric glands, but that these latter are secondary, like the buboe of plague. Prof. B. then proceeds to expose the fallacies contained in it; but in which we shall not follow him. We shall merely notice the first fallacy to which he alludes, by way of giving the reader a specimen of what Prof. Bouillaud regards as sound argument. He says,

"Because the inflammation is seated in the glands or intestinal follicles, it has been inferred (by M. Chomel,) '*that no medical observer of the present day looks upon typhoid fever as a gastro-enteritis; that it is as clear as the day that it is not in the mucous membrane of the stomach or intestines that the anatomical lesion which characterizes this affection is situated.*' Now, this is equivalent to saying that the follicles of the mucous membrane of the stomach and intestines are not situated in this membrane; for, if they are situated there, it is *as clear as the day* that we cannot thus say, in a formal manner, that the lesion of them is not situated there."—p. 234.

This reasoning of Prof. Bouillaud has not even the merit of being specious. It amounts to this, that because the mucous membrane is involved, (no matter in how slight a degree, and it is sometimes very slight,) therefore it is wrong to say that the disease is not a gastro-enteritis. It would be precisely a parallel argument if he were to tell us, that because in anthrax the skin is involved in the inflammation, therefore it is wrong to say that the anthrax is not an erysipelas. The cases are precisely similar, since the disease of the glands of Peyer commences, and is mainly situated in the sub-mucous tissue, and in an exceedingly circumscribed portion, too, compared with that of the whole length of the alimentary canal.

The second part of the work concludes with some very just reflections upon the moral qualities favourable to the investigation of truth. He warns physicians against the influence of pride, self-love, party-spirit, prejudice, envy, &c. in blinding their minds to truth, and preventing them from doing justice to the discoveries of others, whom, instead of regarding as fellow-labourers, they are determined to view as rivals. No one will hesitate to give full assent to his remarks upon this subject; and it is only to be regretted that he has not given to his precepts the weight of his example.

The third part is devoted to the general consideration of clinical medicine. This may be regarded either as a science or as a mode of instruction. In the former point of view, it is nothing else than the knowledge of diseases; whilst in the latter, it is *medicine taught at the bed-side.*

"I shall give in this third part," says Prof. B., "merely some general remarks upon *clinical medicine*, considered as a science, and not as a mode of instruction.

"The general views which I propose to deliver in this third part will run, 1st. Upon the causes, nature and philosophical classification of diseases. 2nd. Upon their seat, their extent and their anatomical characters. 3d. Upon their symptoms and diagnosis. 4th. Upon their duration, their course, their type, and their terminations. 5th. Upon their prognosis. 6th. Upon their treatment."

He admits that our knowledge of the causes of disease is exceedingly limited; that some morbific causes of which the atmosphere may be the vehicle, cannot be detected by any instruments which we possess; and that perhaps they never can be appreciated otherwise than by their effects upon the human body, which is a more delicate instrument than any constructed by art. But although ignorant of the essential principle which gives rise to certain diseases, we may determine the external condition favourable to their production and consequently the means of preventing them.

"Thus, for example," he remarks, "we are ignorant of the principle *sine qua non* of typhus, but are well aware that the crowding together of a great number of men in a confined space, that the use of putrified food, &c. are conditions which give rise to this principle, and that consequently in order to preserve ourselves from the disease in question, it is indispensable to avoid the circumstances above indicated. We are ignorant of the virus of the mad dog, but know perfectly that the saliva is the reservoir of it, that it is absorbed along with the latter, and we prevent its effects by cauterization practiced in time, &c. &c."—pp. 249–250.

He ranks atmospheric vicissitudes amongst the most common causes of disease, entirely dissents from the modern writers who think that the extent of those influences has been very much exaggerated, and supports his opinion in part by reference to the authority of Hippocrates and Sydenham. That other conditions come into play to favour or retard the operation of atmospheric variations, and consequently that a slight exposure to them will sometimes produce an effect which a greater one will not do under other circumstances, is very probable. But we have no right hence, to conclude that atmospheric changes of temperature are not the principal causes of the production of a great number of diseases, though doubtless they frequently operate merely as accidental ones. We agree then with Prof. Bouillaud on this point, for the experience of ages in a question like the present is not lightly to be cast aside, until positive proof can be produced of its fallacy, which has not been done in the present instance. As the causes of diseases are but little understood, "their intimate nature," says our author, "must be involved in darkness, and consequently their classification, founded upon this basis, must be imperfect." He thinks that a great fault of most nosological systems is, that they are founded exclusively upon the vital properties, the changes in which necessarily resolve themselves into the three following, viz: augmentation, diminution, or alteration of these properties. He thinks that the physico-chemical nature of diseases must enter as an essential element in every good classification, and proposes that diseases should be divided into

mechanical, physico-chemical and vital. In reference to the seat or localization of diseases, he says:

'If there be an axiom in medicine, it is assuredly the following proposition, viz: that no disease exists without a seat. If we admitted the contrary opinion, we must admit also, that functions may exist without organs, which is a palpable absurdity.

"The determination of the seat of diseases, or their localization, is one of the most beautiful conquests of modern medicine."—p. 257.

Our author justly attributes this to our advanced knowledge of anatomy and physiology, and goes on to observe that for the most part, diseases are located simultaneously both in the solids and fluids of the living economy.

"If this were the proper place, we could bring forward an immense number of facts to establish that all the fluids in general, and the blood in particular, are susceptible of marked and great changes, either *primitive* or *secondary*. * *

"The question about general and local diseases has been the source of disputes which still continue, but which will be put an end to, when the terms of the question shall be well defined, and good faith shall preside over all discussions. Let it suffice to say here, that the *general* systems being susceptible of attack in every part which enters into their composition, it is evident that in these cases the disease will be necessarily general. The blood, the study of which belongs to the vascular system, cannot undergo a change throughout, without there resulting from this a general disease, &c."—p. 261.

The views above expressed must be admired for their justness, and it is to be regretted that the author has not carried them out practically in his criticisms. Had he done so, he would not have led his readers to suppose, as it appears to us he has endeavoured to do, that certain individuals were opposed to the doctrine of the local origin of fevers, merely because they do not see fit to locate them in the alimentary canal.

Mr. B. proceeds to observe that,

"On the other hand, there are very many diseases, which, primitively, at least, affect but a single organ, but a single one of the generative elements of an organ: Now, in opposition to the preceding, these constitute local diseases. Of these latter, few remain local, in the strict sense of the term. Thus, for example, the greater part of inflammations soon extend themselves," &c.—p. 261.

He then goes on to observe that local diseases are generalized through the medium of the great sympathetic, through that of the continuity or contiguity of tissue, or by means of absorption, as when pus or other morborific matters are absorbed into the mass of the blood. He admits that diseases at first general, may subsequently localize themselves, though he thinks that this doctrine has been very much exaggerated.

In the article on morbid anatomy we find some excellent reflections in reference to the mode in which post-mortem examinations should be conducted. Much stress is laid upon the necessity of making a thorough and complete examination, and of employing every method within our reach calculated to render our observations more precise. He tells us too, that post-mortem examinations, carelessly and imperfectly made, are worse than none, inasmuch as they may lead into error.

We have often had occasion to verify the truth of this remark, and it cannot be too forcibly impressed upon the mind of those who undertake upon the ground of such examinations, to denounce the evidence of physicians, whose investigations have been conducted with the greatest accuracy and most unwearied assiduity, aided by long habit and a thorough acquaintance with the subject. We have often heard physicians deny the existence of a lesion, which a more careful examination and a better acquaintance with the requisitions of pathological anatomy would have enabled them to discover, and as a consequence of their mistake misinterpret the whole character of a case.

Much of what has been said above, applies with equal force to the study of semeiology, in treating of which our author lays much stress upon the importance of paying attention to the condition of the fluids.

"Up to a very late period, the semeiological examination of the liquids was but little attended to. I have felt myself bounden and been obliged to supply in part this deficiency. During the last four years, the blood, the urine, the saliva, the perspiration, and the sputa have been objects of special study to me. This study has not been, I hope, completely lost to science. I cannot give here all the details of these researches; suffice it to say, that in the principal diseases (*grandes maladies*) the liquids in general, and the blood and urine in particular, present alterations, or if you choose, symptoms, as constant as those furnished by the exploration of the living solids."—p. 280.

He then goes on to say that the blood, in cases of acute inflammation, is so entirely different from that found in typhoid fever, that we can, by the mere examination of the blood drawn, distinguish with certainty the two diseases.

He further informs us that the results of his researches, which have already been in part published in the *Journal Hebdomadaire*, will be fully exposed in a treatise on general pathology, which he intends shortly to publish.

"Diagnosis comprehends two principal things; viz. 1st, a knowledge of the seat of the disease; 2nd, a knowledge of its nature. Now, in order to deduce this two-fold knowledge from semeiological data, we must necessarily admit that these latter are the faithful translation, the formal revelation of the diseases."—p. 282.

Others assert, on the contrary, that we often find a perfect identity of symptoms in cases where the lesions discovered to us by anatomy are very dissimilar, or even altogether absent. Our author contends, on the other hand, that the contradiction alluded to between the symptoms and the disease must be apparent and not real. If it were otherwise, he says, "we could no longer admit this evident principle, this axiom, viz: that the effect is proportionate to the cause and reciprocally.

This is true no doubt in theory, but in point of fact there exist many diseases, especially of the brain, which give rise to symptoms so nearly identical that it is difficult in practice, at all times, to draw the line of demarcation between them. Thus we have seen softening of the brain mistaken for typhoid fever by the most profound diagnosticians; because in the instance alluded to the symptoms to which the former gave rise so nearly resembled those usually charac-

terizing the latter, especially we presume with reference to the brain, as to have led, if not necessarily, at least very easily, into error. Many cases analogous to the above in fact occur, in which we must depend chiefly for our diagnosis, not upon what may be called the physiological symptoms, but upon a knowledge of the circumstances under which the disease arose, its commencement, course, invasion, collateral circumstances, &c. Hence, as we mentioned in a former part of this review, the necessity of interpreting symptoms, not merely as connected with the organ to which they physiologically belong, but also with the general disease, where such exists, of which they constitute one of the representatives. Prof. B. also admits the possibility of different lesions of one organ giving rise to symptoms nearly similar, and instances nervous palpitation and hypertrophy of the heart, where the latter is slight; mentioning, at the same time, that in such cases we must weigh most carefully every circumstance connected with the disease.

The chapter on the cause, duration, &c. of diseases commences as follows:

"The terms *acute* and *chronic* are applied to diseases according as their course is rapid or slow, &c. * * * * And as the same disease may, during the whole term of its evolution, take on successively the *acute* and *chronic* course, this distinction does not apply to the nature or essence of diseases, but merely to their form. This remark might appear unnecessary, I know; it nevertheless seemed to me indispensable at a time when some physicians imagine that they have fully proved that two diseases differ in their nature merely because one belongs to acute diseases and the other to chronic diseases."—p. 289.

The conclusion of the above paragraph should be reversed in order to represent faithfully the views of the physician or physicians to whom Prof. B. doubtless alludes. These individuals uphold that certain diseases, the distinction in the nature of which they conceive to be established by *numerous* and cogent arguments, derived from an investigation of symptoms, pathological appearances, &c. are also found to be characterized by the circumstance that one is generally acute and the other chronic. But their difference of nature is not at all based upon this circumstance, any farther at least than as it may come in as a collateral proof after the principal point has been mainly established upon other grounds. The diseases here alluded to are what are called inflammation and organic diseases, as cancer, tubercles, &c.; which latter our author regards as identical in nature with the former, as depending upon chronic inflammation. This question we cannot discuss at present, and will merely observe that we conceive it can be fairly established, from the most undoubted data, that organic diseases, as tubercles, &c. are, in the immense majority of cases, not merely chronic in some part of their course, but chronic from their commencement, or, in other words, chronic in their nature. On the other hand, we think that pure inflammation, not kept up by mechanical or other accidental causes, is in the great majority of cases acute, or, in other words, is characterized by acuteness.

Of the various circumstances which affect the duration of diseases,

he regards the treatment as the most important and influential, and especially bleeding, when employed in the manner which he recommends, and of which we shall speak farther on. He thinks that in this way the duration of several eruptive diseases may be diminished, and that many inflammations, as pneumonia, &c. may be completely cut short.

Speaking of the types of diseases, Prof. Bouillaud expresses the opinion that the intermittent type is peculiar, or nearly so, to the neuroses. He continues,

"Continued and intermittent fevers are not then, in my opinion, one and the same disease. The first, as we know, belong to the class of phlegmasiæ. Now, a true phlegmasia, such as a pneumonia, a pleurisy, *an enteritis*, acute or chronic, is never, strictly speaking, intermittent."—p. 295.

He concludes by expressing the opinion that intermittents are probably neuroses of the sympathetic nerve. We pass over a few remarks on the prognosis and mortality, and proceed to the sixth and last chapter of the third part, which is occupied with the treatment of diseases.

Prof. Bouillaud regards it as an axiom, and few will be disposed to deny its truth, that diagnosis is the base-work of therapeutics, and goes on to say that

"Therapeutics is really nothing more than a deduction or corollary from the ideas or doctrines which we have formed upon the *nature* of diseases."—p. 302.

This proposition seems inconsistent with the admission that the *nature* of many diseases is altogether or partially concealed from us; and, with the opinion subsequently expressed, that a principal means of introducing certainty into therapeutical science, and of determining the curative value of therapeutic formula, is to make a statistical comparison of the mean results obtained by those different formulæ in different series of cases similarly circumstanced. Now it is evident that conclusions obtained in this way are the mere results of direct experiment, and in no way connected with our views in reference to the *nature* of diseases, except in so far, at least, as these views may have led us to experiment with one method of treatment rather than another. But we shall be told, that although this method is required in the present imperfect state of our science, yet still it is not the less true, as an abstract principle, that therapeutics is deduced from our views of the nature of diseases. That therapeutics will be so deduced at some distant day is possible, but it is clearly incorrect to say that it is so, and we notice the error especially, because we think that this and other analogous general propositions, practically inapplicable to any great extent in the present state of our science, are calculated to lead into gross errors. Such propositions are attractive to young and ardent minds, necessarily possessed of but few facts derived from their own experience, and consequently disposed to adopt a synthetical rather than an analytical method of reasoning. The latter, however, is almost exclusively applicable to medicine in its present condition; for the little knowledge which we possess of the laws which regulate the operation of the vital forces, and of the essential nature of morbid phenomena, must preclude the

possibility, as a general rule, of our reasoning from cause to effect. The errors to which we allude are the adoption of hypothesis to enable us to carry out the principle which we have erroneously adopted, as one which is generally and practically applicable at the time, and a consequent distaste and neglect for the strictly analytical results of direct experiment and observation.

We extract the following because we think that it places in its true light the present state of therapeutics.

"In the present condition of therapeutics, the numerical method, in particular, cannot be too much employed, conformably to the rules which we have previously laid down. Indeed, since, as regards a large number of diseases, physicians are not agreed about the nature of those diseases, or about the value of the means which we oppose to them, or about the mode of action of those means, a comparison of the number of individuals who have died or recovered after the employment of each rival method, is then a document of the highest importance. Before deciding definitely upon the superiority of this or that method, of this or that therapeutical formula, we should be particularly careful to repeat and multiply comparative experiments. In proceeding thus by *means of large numbers*, in the appreciation of the comparative or absolute value of therapeutic methods, we are sure to avoid serious errors. Whoever will pursue this course, provided he is endowed with a mind which is well balanced and free of prejudices, will soon be able to determine the value of any given treatment. At all times, I know, that therapeutic methods have been judged by their results, and each practitioner brought forward in support of his own, the large number of his cases. But they counted them in a vague manner, and by mere guess work (*à peu près.*) Now, the true and proper method of calculation does not consist in saying, I have cured a *great many patients;* I have *cured more than such or such a one of my professional brethren;* but in setting forth in figures the precise number of deaths and cures, under the influence of a certain treatment, and under circumstances as rigorously determined as possible, and in comparing the amount with that furnished by an equal number of patients treated by another method, and placed under circumstances similar to the preceding."—p. 305.

Our author then thinks, that a method whose results are established independently of any doctrines in relation to the nature of particular diseases, is the one to which we are principally to look for the advancement of therapeutical science. He admits too its deplorable uncertainty in many points, and that it rarely adopts means the action of which can be clearly explained. He even says that some of the medications employed upon purely empirical grounds, are, to say the least, as efficacious as the most rational methods.

He admits that there is, as a general rule, a tendency in the animal economy when diseased to restore itself to a healthy condition; but thinks, on the contrary, that in ordinary acute diseases of the abdomen, chest, and head, the expectant method of treatment would be a perfect scourge.

Although therapeutical indications are founded upon the nature of the disease, when the latter is precisely known, it is, nevertheless, true that,

"As in a great number of cases, this nature is either partially or entirely unknown to us, it follows that the indications can only be furnished by the expe-

rience which we have acquired of the utility of such or such a means, in cases analogous to the one which we have to treat.—p. 322.

In the concluding section we are made acquainted with the importance, when endeavouring to arrive at the value of a particular method of treatment, of looking not merely at its general character, but of determining with precision the elements composing it. Thus, if we wish to determine the effects of a remedy, we must fix its dose and the time of its repetition. Sanguine emissions are mentioned as an example, and we are told that the effect of these varies exceedingly, according to the length of time in which a given amount of blood is drawn. It is then strenuously asserted that frequent bleedings, repeated at short intervals, are followed in most acute inflammations, (pneumonia, pleurisy, &c.) by results so astonishingly favourable, as to be almost incredible to those who have not witnessed them, and altogether different from those obtained by the moderate bleedings usually practised. M. Louis, on the contrary, has published a work in which he has endeavoured to sustain the opinion that the efficacy of bleeding in the inflammations above-mentioned, has been very much exaggerated. The amount of blood drawn, however, in the cases from which those conclusions are drawn, was moderate; and consequently Prof. Bouillaud argues that M. Louis has no right to infer from the results which he has obtained, that bleeding when practiced in a different way, or as our author says, *coup sur coup*, may not be followed by very different effects. The paper of M. Louis has been replied to by M. Donné, one of his former pupils, an extract from which, of more than eight pages, is given in the present work by Prof. B. The arguments of M. Donné are certainly very forcible, and we cannot help admitting that M. Louis in thus restricting the efficacy of bleeding, *in general*, in the diseases mentioned, has been very far from exercising his usual caution. His conclusions, in fact, are only applicable to bleeding as employed by him, and in this light only are valuable.

The above remarks will serve as an introduction to the fourth part of the present work, in which a parallel is drawn between the therapeutical results obtained by the new method of sanguine emission and those derived from that usually adopted.

Prof. Bouillaud claims the paternity of the former, and eulogises it in the following language:

"During the last four years, since the commencement of which period we have waged this rude warfare against acute inflammations, and which will form the subject of the following reports, it seems really as though we had entered into a new world. These diseases no longer mock the physician and his remedies, as in the time of MM. Louis and Chomel. In the presence of a crowd of pupils, and of many of our fellow practitioners, we have, at the bedside of the patients, and with the book of M. Louis in our hands, examined the assertions of this practitioner in reference to the slight efficacy of bloodletting in the diseases which he has mentioned, and every one has been perfectly convinced that those assertions, applicable only to the small and inefficient bleedings of M. Louis, are refuted in the most happy and clear manner by the numerous cases in which we have put in practice our formula of sanguine emissions frequently repeated *(coup sur coup.)*"—pp. 347–348.

A numerical analysis is made of the cases of pneumonia, typhoid fever, &c. treated by this method under Prof. B.'s direction in the wards of La Charité. A comparison of the amount of mortality and other circumstances is then made between these series and others treated upon the old method. From certain statistical data he establishes the mortality in pneumonia treated according to the old plan, in the Paris hospitals, as about one in three. It should be recollected, however, that these data refer to a period anterior to that in which he commenced his new method of treatment, and consequently that he compares results obtained in different years, which renders his conclusions somewhat doubtful, as under the same treatment the mortality in different years in the same disease often varies. However, the mortality in pneumonia at La Charité, according to the new method, is only one in eight or nine. The difference is certainly enormous. The amount of blood taken in each case was of course very different, but the average quantity was four pounds nine or ten ounces, or nearly double that recommended by Sydenham under similar circumstances. The smallest amount taken was one pound twelve ounces, and the largest ten pounds. Of course we speak of the amount taken both locally and generally. The peculiarity of Prof. Bouillaud's method consists especially in the frequent and quickly repeated bleedings, and not merely in the quantity of blood drawn. Of course it is understood that the method is to be adopted promptly at the outset of the disease. The bleedings are to be repeated as a general rule three times on the first day, each bleeding being from twelve to sixteen ounces, on the following day twice, and so on, so that the whole amount shall be taken in the first three or four days. Results very similar to the above were obtained in typhoid fever and other acute diseases. We shall not undertake to discuss the relative value of the two methods of treatment, as further data are certainly required to settle the question. Before leaving the subject, we will merely observe, that during a late discussion in the Academy of Medicine of Paris upon this subject, it was asserted by M. Louis that he lost only about one in eight of his pneumonic patients treated according to the old method. He stated likewise, that in typhoid fever his loss was less than one in nine, which is a smaller mortality than that claimed by Prof. Bouillaud as the result of his new method. As we said above, new investigations must be entered into and a comparison made between different series of cases observed during the same year or years, and if possible, in the same hospital. T. S.

ART. XI. *A Treatise on the Diagnosis and treatment of the diseases of the Chest.—Part I. Diseases of the Lung and Windpipe.* By WILLIAM STOKES, M. D., M. R. I. A., &c. Hodges & Smith: Dublin, 1837.—8vo. p. 557.

Dr. Stokes is well known to the profession in this country from his excellent course of lectures on the practice of medicine, which were fully analysed in some of the preceding numbers of this Journal; and is eminently distinguished for the successful efforts which he has made to render the study of disease more precise, and to diffuse a more general taste for those physical means of investigation which have so much increased our knowledge of diagnosis. The school of Dublin is largely indebted to his efforts, and to those of his colleague, Dr. Graves, for its celebrity, and it is now amongst the most deservedly celebrated in Europe, and in some respects superior to any in the British Islands.

The present work is the first part of a treatise which, when completed, will embody the most important facts known relative to the diagnosis and treatment of thoracic disease; and is the more valuable on account of the long-continued personal observation of Dr. Stokes, which has enabled him to verify, and carefully to sift the facts announced by the continental observers, as well as to add a considerable quantity of original matter. There is no other work so rich in the details—none, in which the new truths in physical examination discovered by Laennec and his successors, are set forth so concisely and at the same time in so intelligible and useful a manner. The works previously published are either so diffuse that the more valuable materials are too deeply concealed for ordinary use, or they are too much abridged, retaining more or less of the character of manuals.

The diagnosis of pectoral diseases is now so well understood that a reviewer may very properly confine himself to the slender task of pointing out the few facts of a novel character that a writer has been enabled to add to the number already possessed by the science. But while we shall endeavour to indicate the additions which medical science has received from the labours of Dr. Stokes, we shall venture still farther, and will not refrain from calling the attention of our readers to what may perhaps be already familiar to them. It is not enough that a fact is true, or that it is admitted by those who have had the inclination and the means of verifying it; a large class of readers are slow to believe what is new, or perhaps hesitate to receive the best founded opinions, because they are not familiar with the evidence necessary to conviction. In the latter case, the hesitation is well founded, and can only be overcome by a patient and thorough examination of the subject, or by that slower and almost insensible process by which we arrive at many truths; that is, the frequent representation of facts under so many and different forms that the judgment is convinced without an effort of attention.

A treatise on physical diagnosis is useful on other grounds. The signs of thoracic disease do not change, but from year to year their cause is better understood, and the connexion between them and the

general symptoms is better defined. These changes can only be pointed out by the occasional appearance of a work on the subject, and that they are considerable, we may perceive by comparing the work of Dr. Stokes with the first or even with the last edition of Laennec. The diagnosis and even the pathology of diseases of the chest cannot become free from difficulty until the physical means of explanation are completely blended with our ordinary methods of examination, and regarded simply as the key to a particular set of symptoms. Hence we perceive that the most recent investigations of these affections lay less stress upon the physical signs; not that they are less true, but because their existence is assumed as a fact which every one may verify, and because they are so evident that they may serve as a starting point for other and more difficult researches.

Excellent as the work of Dr. Stokes will be found, it perhaps falls a little short of our expectations in this respect, scarcely inviting sufficient attention to those general symptoms which make up so much of the pathology of disease. Still it would be unjust to reproach one who has done much and that well, with not doing more; this sort of imperfection is inherent in our ablest productions, and it is no small praise of a work, that its merits are such as to give us greater cause to regret an imperfect developement of certain portions of it, than reason to complain of the inaccurate or unscientific mode of treating the subjects which are most fully illustrated. But we cannot avoid stating that the relative importance attached to the physical means of explanation is too great; they are brought forward into too strong a light, while that nicety of observation of particular symptoms and refined calculation of probabilities which indicate the higher degrees of skill in diagnosis are rather thrown into the shade. We may venture to speak thus, because we fully appreciate the utility of physical exploration after years of constant familiarity with its various methods, and are convinced of their accuracy and ready applicability to all cases of thoracic disease.

This warm partiality for physical investigation which we criticise in Dr. Stokes is, perhaps, a result of the school in which he was educated, and of the course which he has pursued. As a pupil of Laennec, he was naturally led to devote his efforts to the diffusion of a knowledge of those means of investigation which were then received coldly, or looked upon as completely deceptive. In conjunction with Dr. Graves, the author published, what at the present day would seem unnecessary, a statement of cases, to prove that auscultation was, in reality, founded upon observation, and that the physical signs correspond to fixed pathological changes. Since Dr. Stokes's return to Dublin he has been constantly engaged in the duties of instruction, and especially in diffusing amongst his countrymen a knowledge of pathology and of organic medicine which have led to such brilliant results in the hands of some of the French pathologists. These pursuits have rendered him one of the most able pathologists and accurate observers of our times; but they have not led him to push his inquiries into those portions of pathology which are comparatively little known; they have made him a teacher rather than a discoverer.

The school of Dublin is, in some measure, marked with the same peculiarity. It teaches admirably pathology as it is known, and has one advantage over most continental schools in possessing a system of therapeutics more in accordance with the views generally received in this country; but it is certainly inferior to the Parisian school in that intimate knowledge of pathology and active spirit of research which must, ultimately, prove the only certain means of increasing our knowledge of exact medicine. This apparent deficiency is probably the necessary consequence of the small number of observers who are interested in prosecuting medicine as a science, with but a slender expectation of ultimate pecuniary reward. In this respect the British Islands resemble the United States, and will probably never present the spectacle, so frequent in France, of men of mature age, and high scientific endowments, resisting the temptations of private practice to devote themselves to the patient, laborious, and in a pecuniary way, profitless pursuits of medical science. Such will ever be the case in those communities in which, fortunately for mankind, commerce and manufactures offer large rewards for the employment of capital, and, indirectly, rather obstruct pursuits in which an immediate advantage is not presented.

The introductory chapters, relative to the method of physical examinations and the explanation of the chief pathological changes on which it is founded, are interesting; but as they are necessarily more or less familiar to most of our readers, we shall pass at once to the examination of the author's remarks upon individual diseases.

Bronchitis is sometimes regarded as one of the most easily understood of all the affections of the chest. The word is used as synonymous with catarrh in its acute and simple form, but it is also employed by practitioners on numerous occasions as a convenient cloak to conceal their ignorance of the real mischief that is going on in the lungs. Hence we hear the term bronchitis applied to phthisis, to various chronic diseases of the larynx and trachea, and even to chronic pharyngitis. These applications of the word are so far right, that few diseases of either the membranes or the substance of the lungs can long continue without the supervention of bronchitis. But in such cases the term bronchitis is used in so general a signification, as to lose all precision. For practical purposes the disease strictly deserves the title when it is so important as to give rise to decided symptoms, or even to threaten the life of the patient; and we should endeavour to distinguish such cases from the mass of ill defined affections with which they are often confounded. Such a separation involves great difficulty, and we fear that even the acknowledged ability of Dr. Stokes has not quite removed it.

Dr. Stokes alludes to a fact with which we have been often struck; that is, the greater simplicity of disease which is discoverable by more accurate anatomical investigations. Successive founders of systems of medicine, attempt to reduce all diseases to the same general laws of developement and treatment. The rapid succession of those systems has shown their emptiness. Such will ever

be the case with all systems that are based upon similar data; for, before we simplify and form general laws, we must discriminate and analyze. The only truly general laws in medicine are, therefore, those which have been deduced from a very laborious and patient separation of the phenomena of disease into such minute subdivisions as may even appear puerile to those who do not comprehend their ultimate object. But where these distinctions are more clearly made, and stand in bold relief from the confused mass of symptoms, which our ordinary observation discovers, we are struck with the beauty and harmony of the laws of nature which gradually bring together these scattered elements, and reduce to order a confused mass of minute and seemingly unimportant details. What should we now know of the history of tuberculous diseases more than our predecessors have known, if we had not sought for their anatomical characters, not merely in the lungs, but in all the viscera in which this morbid deposit may present itself? The inflammation of the mucous membrane of the lungs will probably be thus simplified; but its shades are so numerous, and occur under such varied circumstances, that we cannot but object to the vague manner in which the term is at present employed.

Dr. Stokes has well described the more important forms of bronchitis, but he has not been sufficiently precise in pointing out their distinctive characters; nor is the gradual passage of one form into another, always indicated with so great a richness of detail as to enable the pupil to seize its characteristic features. The deficiency, however, is perhaps less attributable to the author than to the imperfection of our knowledge, which will require the contributions of several successive observers before the study of thoracic pathology becomes complete.

Acute bronchitis is pretty well understood as to its signs and ordinary course; little can be added to the descriptions already possessed of the acute form of the disease, except as to some modifications of the physical signs. We are not entirely of the opinion of Dr. Stokes, that the percussion is not rendered more dull in severe bronchitis; for if the smaller tubes be inflamed to any great extent, an experienced and delicate touch will discover a slight dulness. Some degree of skill and some acuteness of sense are necessary to render this sign very appreciable; but nevertheless, it has a certain value for those who are sufficiently skilful in physical exploration. We attach some importance to it on account of its early occurrence in those varieties of bronchitis which are afterwards complicated with phthisis, especially the miliary acute phthisis, or the tuberculous infiltration; both of which varieties often occur in the lower lobes of the lungs instead of following the usual law of previous developement in the upper lobes. The rhonchi afford the most constant physical signs of bronchitis; if they are absent for a time, a forcible inspiration, which drives the air into the smaller tubes, may reproduce them: but this does not always succeed; so that cases of bronchitis are now and then met with in which no rhonchus can be

detected. This absence of rhonchus may depend upon various causes; chiefly on the limitation of the inflammation to the largest tubes, which do not obstruct the passage of the air unless they are blocked up by copious secretions.

The general conclusions of the author as to the pathology of acute bronchitis are the following:

"1st. That in almost all cases percussion gives no direct sign.

"2nd. That an accumulation of mucus in the inferior portions of the lung may give a certain degree of dulness.

"3d. That in the great majority of cases, in which there is a coexistence of the signs and symptoms of bronchitis with dulness, we may infer the existence of some disease, either of the parenchyma or of the pleura.

"4th. That conversely, the absence of dulness with the existence of irritation of the lung, gives a great probability that the case is one of simple bronchitis.

"5th. That a copious effusion of muco-purulent matter may exist in the bronchial tubes, without perceptible dulness of sound on percussion.

"6th. That in certain cases of bronchitis with effusion, a metallic sound may be produced on percussion. This is somewhat similar to the *bruit de pot fêlé* of caverns, but it is to be distinguished from it by the clearness of sound, its greater diffusion, and the absence of the stethoscopic signs of a cavity.

"7th. That in many cases, on application of the hand, a distinct vibration is felt in accordance with the motions of respiration.

"8th. That the modifications of respiration, as observed by the stethoscope in bronchitis, seem to be connected with mechanical obstruction more or less complete, and which may proceed from one or all of the following causes: turgescence or hypertrophy of the mucous membrane, the existence of various secretions, and lastly, the occurrence of a spasm.

"9th. That in the mode of occurrence of the various phenomena there are the greatest possible differences in different individuals.

"10th. That as a general rule it may be stated, that the more intense the sonorous, sibilous, or mucous *râles*, or any combination of them, be during ordinary respiration, the more severe may the disease be considered.

"11th. But that in certain cases of intense bronchitis of the minuter tubes, the sounds during ordinary respiration cease to be a measure of the intensity of disease, as they become louder during the convalescence of the patient.

"12th. That in the secretive stage of bronchitis the mucous rattle may occur, on the one hand, with large and isolated bubbles, and on the other, may pass into a *râle* almost crepitating, the sound on percussion still continuing clear.

"13th. That in consequence of bronchial inflammation, the entrance of air into a certain portion of the lung may be prevented, under which circumstances the signs are nullity of respiration, with persistence of clearness of sound.

"14th. That this obstruction may result from an organic change of the mucous membrane, or from the plugging up of the tubes by their own secretion.

"15th. That in the first of these cases the absence or diminution of the respiratory murmur is permanent, while in the second it may be temporary, and removable by a fit of coughing; yet even in this case, the obstruction by a concrete mucus has continued from the period of its occurrence until the fatal termination.

"16th. That if, in a case of mucous catarrh, a certain dyspnœa supervenes, with absence or diminution of the respiratory murmur in a particular portion of the lung, this portion also preserving its clearness of sound on percussion, we may make the diagnosis of obstruction of the bronchial tube by its own secretion."

Acute secondary bronchitis very properly claims the author's attention. After mentioning its frequent occurrence in typhus and

typhoid fever, (by the way, not distinguishing between the former disease and the latter as described by Louis,) he speaks of the frequent and early occurrence of bronchitis in the exanthemata. This complication establishes a strong degree of resemblance between these affections and the continued fevers, in which an eruption occurs upon the skin, although less evident than in the strictly exanthematous diseases. It is asked whether these inflammations are especially distinct from the same diseases occurring in the idiopathic form. We cannot positively answer this query, although we investigated the subject with extreme care at the Children's Hospital of Paris, a few years since. We, however, then ascertained that there are two distinct forms of inflammation of the air passages; one of which may be considered as specific, and is caused either by the cutaneous irritation extending directly to the mucous membranes, as often happens in small-pox and scarlatina, in which the fauces, larynx, and even the bronchi are thus affected; or else there is a sort of metastasis of diseased action, in consequence of the eruption not appearing fully on the exterior of the body, or arising from the extreme violence of the disease, which prevents the eruption from being limited to the exterior. Now in these cases, the inflammation is certainly specific; it is analogous to, and sometimes identical with the cutaneous eruption. This variety of bronchitis is totally independent of treatment. But there is another variety which is scarcely specific, and which differs in the various exanthemata. Each of these fevers has a peculiar election for the portions of the mucous membrane that is inflamed; measles attacking the smaller tubes, and often extending to the parenchyma of the lungs; scarlatina affecting the larger bronchi; while variola is much less constant in its laws. Now this secondary bronchitis, which is not always present, usually occurs quite late in the disease, is neither regular in its progress, nor peculiar in its symptoms, but resembles other forms of the disease occurring after febrile affections. It is much more amenable to treatment than the last mentioned variety; although still a dangerous affection from its obstinacy, and aptness to terminate in lobular pneumonia, or tuberculous disease. As measles are most frequently attended by secondary bronchitis, it is more necessary to watch children after the entire cessation of this disease, than after their recovery from the other exanthemata.

Physicians are often consulted for an obscure form of disease, which excites the solicitude of patients, and induces them to suspect the developement of pulmonary consumption. It is a constant cough, not always attended with fever, and in the majority of cases, is without the emaciation and general disorder of the economy which characterize the tuberculous disease. The chest, on examination, will be found free from the signs of phthisis, or even of bronchitis; sometimes the latter affection exists in so slight a degree as not to account for the obstinacy of the symptoms. The cough is usually slight, and followed by no expectoration, but sometimes it is extremely loud and even shrill, much more sonorous than in genuine bronchitis. These cases constitute the chronic secondary bronchitis of our author and may be readily distinguished by one familiar with the physical means of exploration.

If the signs of local disease be not sufficient to account for the cough, we are at once sure that the real seat of disease is not in the chest, but in a distant organ. Our diagnosis is rendered more certain by attending to the peculiar characters of the cough, which certainly differs from that of ordinary pectoral diseases.

We must here avoid an error which proves seriously injurious to the well being of the patient, and the reputation of the practitioner, viz: that is, many varieties of chronic cough may exist for a certain time, without positive disease of the lungs, but afterwards an important organic change in this organ be developed; sometimes as a direct consequence of the same disorder which gave rise to the secondary cough. This is especially true with respect to tuberculous disease of the lungs which often follows a slight cough, and other disordered functions of various organs. Hence, even when we are perfectly sure that the lungs are not actually diseased, we must take care not to overlook the first indications of that general tuberculous disease which may not yet have given rise to serious pulmonary disorder. The knowledge of the physician is here tested more severely than in almost any other point in pathology.

We shall pass over the author's judicious remarks on the treatment of bronchitis, and on the pathology of emphysema, chronic lesions of the bronchial tubes, and the diseases of the larynx.

Pneumonia is regarded by Dr. Stokes as differing from bronchitis merely in the addition of inflammation of the parenchymatous tissue which introduces a new anatomical element, but not a new disease. If the author had restricted his opinion to certain varieties of bronchitis and pneumouia, we should not have differed with him; but we cannot believe that because the tissue of the lungs is, in a great degree, composed of minute bronchial tubes, every kind of pneumonia is little else than a bronchitis of the minute tubes. In fact, as we have already stated, the varieties of bronchitis are so numerous that we can scarcely speak of it as one single affection; these varieties do not depend exclusively upon anatomical structure, but are in a great degree produced by difference in individual constitution, and by epidemic influences. Bronchitis, therefore, of an active inflammatory nature, is so closely connected with pneumonia as to pass into it by a gradation which is quite insensible; while the bronchitis of debilitated subjects is rarely connected with parenchymatous inflammation, and almost never shows a disposition to pass into that active state of inflammation which is almost characteristic of genuine acute pneumonia. The latter disease sometimes evidently commences in the cellular tissue itself; or, at least, its connexion with the smallest bronchial tubes is only secondary, and is confined to a limited portion of the lung. It is this kind of pneumonia which may follow external injuries, and be often unattended with expectoration. A remarkable case of this occurred under our observation a year or two since, in a young girl, who was wounded by the accidental discharge of a gun. Several shot passed into the lungs, crepitant rhonchus, bronchial respiration and dulness of percussion followed; but there was no expectoration.

The author admits a stage of pneumonia previous to the first stage as described by Laennec; in which we agree completely with him, although some of his deductions are not founded on genuine pneumonia. In a case of death from extensive burn, the tissue of the lung presents the same bright red arterial tint observable in certain cases of acute phthisis. Although this bright arterial redness, which we have often observed, is in some cases dependant upon real inflammation, it appears at other times independent of it, and accompanies cases of hæmoptysis from exhalation. The diseased action is hemorrhagic, rather than inflammatory. This opinion seems confirmed by the phenomena of inflammation in other tissues, where the tint even during life is less florid. When the first stage of inflammation was really found, the redness, although intense, was never so bright as in cases of hæmoptysis. This stage of inflammation probably occurs before liquid is effused into the smaller tubes, and therefore, as Dr. Stokes remarks, it is really antecedent to the first stage of pneumonia admitted by Laennec.

The signs of the earliest stage of pneumonia, that is, where no crepitating rhonchus has yet been heard, are stated to be obscure. There is the same obscurity in that rare variety of pneumonia in which the crepitus is entirely wanting throughout its whole course. We have had an opportunity of carefully examining this point in a number of cases, and the following are the conclusions derived from these observations:

1st. That when the pneumonia was superficial, a very fine crepitant rhonchus occurred very early, and was in reality the *first* physical sign. The early occurrence of the crepitus in such cases is readily understood from the anatomical structure of the lungs. At their surface the vesicular portion is found with the most minute bronchial ramifications; now, this tissue is the seat of the crepitant rhonchus, and where it is inflamed while the adjacent portions remain so healthy as not to obstruct the passage of the air, the crepitus is heard very early, perhaps it is sometimes produced before the least secretion of liquids, and may arise merely from the increased dryness and stiffness of the air cells. When the lung around the larger tubes is inflamed while the superficial pulmonary tissue is still sound, a different course is observed.

2nd. In the latter cases the first change is undoubtedly a modification of respiration, which we call rude or rough; that is, an increase of the blowing sounds during inspiration and expiration. The respiration may also be puerile, as stated by Dr. Stokes; that is, the roughness of the sound may be attended with a noisy vesicular expansion; or, the natural vesicular murmur may be even enfeebled, and the increase in the blowing sound alone indicate the obstruction to the passage of the air. These alterations in the sound of respiration occur very constantly in adults, and in children who are sufficiently old to present the regular form of pneumonia so frequent in adults; in younger children, who offer a different variety of this disease, the alterations of the respiration are nearly the same if the pneumonia be not preceded by bronchitis. In the latter case, the rhonchi are

so loud as to obscure the slighter alterations of sound. In all such cases, the simultaneous occurrence of fever and other symptoms more immediately connected with the respiratory system render the local signs of more value. Amongst the general signs, is to be classed the extraordinary prostration of the system, characteristic of pneumonia, and pointedly distinguishing it from ordinary pleurisy.

The description of the signs of pneumonia in the second and third stage are detailed by the author with the accuracy we might expect from one of the most skilful auscultators of the day. The absence of bronchial respiration in many cases in which the lung has passed to the third stage of inflammation is pointed out, and is explained by the very general solidification of the lung, which prevents motion in the side affected; so that a current of air is not driven through the bronchial tubes with sufficient rapidity to produce the bronchial respiration. This explanation is not entirely satisfactory; for if the pneumonia be most advanced at the base of the lung, the bronchial respiration ceases very soon, even before the third stage occurs; the tubes are there comparatively small, and readily obliterated by the tenacious mucus which blocks them up in the advanced stages of those affections; the air is thus completely excluded, and no sound occurs during respiration.

Typhoid pneumonia is a very interesting form of disease, which is frequent in Dublin, and at times prevails in this country. Dr. Stokes considers typhoid pneumonia as an inflammation of the lung, occurring in individuals of impaired constitution and under certain *epidemic constitutions* depending upon unknown causes. Besides this form, which is the type of the disease, the author classes under the same head the varieties of acute pneumonia which occur during the course of typhus and typhoid fever, as well as in phlebitis, delirium tremens, erysipelas, or diffused cellular inflammation. This classification is rather too general, as the pneumonia attending phlebitis or consequent upon operations and extensive suppurating surfaces differs much from the other varieties. In other respects there is an apparent analogy in these forms. Nor is this to be wondered at, for the same low, depressed state of system exists in all those cases, and may either give rise to the ordinary anatomical characters of pneumonia with merely a difference in symptoms, or to a disease which presents a different pathological state, and is rather disposed to pass into gangrene than to secrete either lymph or pus.

As a general rule, the local signs of pneumonia, when it occurs as a secondary lesion during the course of febrile affections, or as a primary disease of low action, constitute the only sure means of distinguishing it; for the cough and pain are slight, or wanting, and the general symptoms are either confounded with those of the primary disease, or are obscured by the feebleness of the patient. Still, even the local signs differ from those of ordinary pneumonia, and we rarely meet with the decided bronchial respiration or quickly formed dulness of the acute disease. The rhonchi are more humid, and this disease is much more slow in resolution, passing frequently into tuberculous degeneration of the lung or gangrene, and is occasionally

followed by rapid softening and the formation of a large cavity without the presence of tubercles.

The observations relative to the treatment of pneumonia are highly judicious, and show that Dr. Stokes's zeal for pathology has not led him to neglect the all important subject of therapeutics. It requires some thought, and a certain habit of exact yet enlarged analysis, conjoined with the most expert and attentive observation to ascertain the best method of treatment in pneumonia: and while the views of the most judicious physicians are not yet settled as to the precise value of various therapeutic agents in the treatment of pneumonia, we must examine with care the statements of the ultimate success obtained from various modes of practice, and even inquire into the immediate advantage resulting from the action of particular remedies; these therapeutic problems although both important, are still distinct.

The general method of treatment recommended by the author coincides with the experience of physicians in this country. We could have desired a more complete account of some peculiarities requiring modifications in a mode of treatment, apparently the best fitted to diminish the mortality and suffering. For in pneumonia, as in other acute diseases, it is important to impress upon the student the necessity of watching for peculiarities in the form of disease, and of modifying his practice in its different stages. Hence a mode of treatment, which seems sanctioned by reason and experience, may be productive of harm if applied without due discrimination.

At Dublin, one or two general bleedings are found sufficient. Now and then a severe inflammation may occur in a stout and young subject, in which blood-letting may be repeated with advantage, or may even become necessary; but in most cases one or two bleedings, proportioned to the severity of the disease, and to the strength of the patient, produce a sufficient impression if employed at the commencement of the disorder. After the first days, venesection must be sparingly practiced. General bleeding is chiefly advantageous in the sthenic form; that is, the active acute inflammation tending to secrete pus and lymph. Still the abstraction of blood rarely cuts short the disease, although it almost always lessens many of the constitutional symptoms, and relieves the patient, while it has a certain influence in shortening the disease and diminishing its mortality. Now this is the precise result obtained by all conscientious observers; at least our observation in America confirms the facts ascertained at Paris, and corroborated at Dublin. In the few cases in which the disease was entirely arrested, depletion was used very early.

The asthenic form of the disease, or typhoid pneumonia, (using the term in the extended signification given to it by Dr. Stokes,) not only does not require, but may be seriously injured by free blood-letting. Dr. Louis does not indicate the distinction between the two forms of pneumonia; and therefore his observations lose part of their positive value. In this form few practitioners now bleed from the arm, or do so very cautiously and generally after cupping has been premised. If a large bleeding be practised, an extraordinary prostration of strength speedily follows, from which the patient may recover with

difficulty. The ulterior effects of the remedy are far from being sufficiently advantageous in such cases, for us to risk the production of so great a degree of prostration. This kind of pneumonia has been extremely frequent at Philadelphia, during the present winter; and little advantage has resulted from large general bleeding; cases treated by local depletion, with stimulating expectorants, diaphoretics, and the mercurials, recovered with much greater rapidity.

Local is considered more efficacious than general bleeding; it is undoubtedly a most powerful remedy, although Dr. Stokes has perhaps an extreme partiality for this mode of depletion. It comes in most advantageously in the treatment of the asthenic, and in the latter stages of ordinary pneumonia, where the oppression is great, but the general feebleness prevents the abstraction of blood from the arm.

The practice at the Meath hospital is to use either the antimonials in large doses, or mercurials after the use of general and local bleeding. That is, the antimonial practice is next in power to blood-letting, to which it is rather an adjuvant than the principal remedy. With this proviso Dr. Stokes bestows the highest approbation on this mode of practice; he begins in doses of four to six grains in the twenty-four hours, and gradually increases to ten or twelve grains; it is rarely necessary to give more than from twenty-five to thirty grains during the treatment. With the phenomena of tolerance we presume our readers to be sufficiently acquainted; when the remedy is not borne without much uneasiness after two or three doses are taken, we rarely persevere in its administration. If the only symptom be a slight purging, it may be checked by a moderate quantity of opium. In the majority of cases, patients become accustomed to the use of the medicine, and actually regain their appetite while taking considerable doses of it. The remedy must be watched, and even when tolerated should not be continued too long: thus, if no sensible diminution occur during the course of the second or third day, we generally suspend the antimony; agreeing with Dr. Louis, that unless the good effects of the remedy are seen within the first forty-eight hours, but little advantage can be anticipated from it. If great depression follow its use, it should be immediately discontinued, or be given in very small quantities, especially if the patient be of a nervous temperament. If the brain be much affected and the sensibility of the patient diminished, there is a danger of ulceration, and therefore the precept of not continuing the remedy beyond a few days should be rigidly observed in such cases.

The mercurials answer best in the treatment of the asthenic form, and in the advanced stages of the ordinary pneumonia; in this city the practice is to give calomel in small quantities combined with ipecacuanha, and sometimes with opium, so as to excite a slight ptyalism. Blisters are also very useful in these forms of disease, and although they are much less powerful in shortening the duration of the disease than blood-letting, are undoubtedly valuable remedies when the disease is still unresolved and the strength of the patient is failing.

Dr. Stokes is partial to another favourite American remedy; the Seneka snake-root combined with carbonate of ammonia. In the suppurative stage of the sthenic, and even in some of the early stages of the asthenic forms, we have derived benefit from tonics; these form a very useful remedy. In some cases of drunkards we have even ventured upon brandy punch and other stimulants with great advantage. The diaphoretics of a stimulating character are also amongst the more valuable remedies in the asthenic forms of pneumonia.

We have said much of the treatment of pneumonia, because we believe that a great part of the success of various practitioners will depend upon their distinguishing between the two forms of the disorder. In our clinical lectures we have long insisted upon the necessity of great care in this respect, and we are glad to find that Dr. Stokes is so fully aware of the importance of this point, which is comparatively overlooked by the French physicians.

Gangrene of the lungs is mentioned in rather a cursory manner by Dr. Stokes, who contents himself with giving a few brief cases. We shall pass over his account of it, and also that of carcinoma, proceeding to the more frequent, and therefore more important disease, tubercle of the lung.

The enumeration of the physical signs of tubercle is very complete, and indicates the extreme care with which Dr. Stokes has studied the subject. There are but two or three points which he has omitted or passed over very slightly. One is the mode in which the respiration becomes rough or imperfectly bronchial in the early stages of the disease, a condition which may accompany either a feeble or puerile respiration; and another is the imperfect account which he gives of the modification of the resonance of the voice very early in the disease. The frequent feebleness of the respiration on the right side of the chest is mentioned, but the author has not stated that there was also at the summit of the right side a very slight rude respiration in a large number of healthy individuals; now this circumstance must modify in an important manner the signs of commencing phthisis.

The physical signs of phthisis are, however, more useful in pointing out its exact course and progress, than in indicating with certainty that the disease is present at the very commencement of the tuberculous secretion. For, however great our skill in diagnosis may be, we cannot expect that we shall be able to distinguish the disease from the physical signs, except when its very earliest seat is in the lungs, and in a limited portion of the lungs only; tubercles in very small numbers cannot be detected unless they are congregated in a very small portion of the pulmonary parenchyma. When we inquire into the history of the tuberculous disease we find that the law of their earliest developement in the lungs, though general is not universal, and that even in cases in which it holds good, the local diseases are insignificant compared with the disorder of the general system and rapid decline of the patients. Now the great object of refined diagnosis is to ascertain the signs indicative of this constitutional disturbance, and reduce them to a positive formula.

Although we lay the greatest stress upon these general symptoms,

we attach much importance to the negative value of the physical signs, as a means of proving to us that the lungs are not yet much affected. A discovery of this kind gives the physician strong ground for hope, although it does not allow him to affirm, in opposition to the evidence of general symptoms, that the patient is absolutely free from consumption. Such assertions are often most unhappily contradicted by the unexpected appearance of unequivocal consumption.

Dr. Stokes has, perhaps, not regarded it as within his plan to enter much into the diagnosis founded upon general signs. He has very graphically described the prominent varieties of phthisis; but it is rather with the view of affording facilities for diagnosis by means chiefly of the physical signs, than with the intention of rendering general symptoms immediately useful for this purpose. The chapter upon tubercles would have acquired additional value by bringing forward every sign which could throw the least light upon so obscure a subject as incipient phthisis. Without the most thorough acquaintance with the symptoms of the general tuberculous disorder we are led to study its ultimate effects rather than its commencement; with such a knowledge we still labour under difficulties; but we have a thread which will sooner or later guide us from the labyrinth. A careful study of the author's divisions and descriptions of the tuberculous diseases of the lungs will, in some measure, diminish this difficulty. He divides phthisis into the following varieties:

"1st. Acute inflammatory tuberculisation of the lung without suppuration. 2nd. Acute suppurative tuberculisation. 3d. Chronic progressive tubercle, with signs of local and general irritation; pulmonary ulceration. 4th. Chronic progressive ulceration succeeding to an unresolved pneumonia. 5th. Tuberculous ulceration succeeding to chronic bronchitis. 6th. Tubercle consequent on the absorption of an empyema. 7th. Chronic phthisis complicated with pneumo-thorax from fistula. 8th. Tubercle complicated with disease of the larynx. 9th. Latent progressive phthisis. 10th. Chronic latent but partial tuberculisation. 11th. Chronic general tuberculisation. 12th. Cicatrization of cavities."

Of these the acute inflammatory form, without suppuration, is the most formidable. Dr. Stokes has never witnessed it except as a sequel or complication of typhus. It generally occurred after the subsidence of the fever, a sort of interval occurring between the two affections. The same disease is a frequent consequence of typhoid fever; but it may occur without being preceded by either. In these cases of primary tuberculous disease, the violence of the fever, the profuse sweat, the rapid emaciation, and the frequent chills are better indications of the disease than the local signs, which are at first necessarily doubtful; for the tubercles are deposited under the form of granulations, which are *disseminated* throughout the lungs instead of being collected at the summit.

Frequently this tuberculous fever is not connected with much bronchitis, for the irritation of the bronchial mucous membrane is not always great in the early stages of the variety which begins without an obvious cause. When bronchitis is present, it differs from the usual form, in resisting all ordinary means, and rarely terminating in recovery. The only remedies of much avail, are those which modify the constitution in general, and which tend to check the pro-

fuse sweats, and exhausting fever. Hence the treatment which we have found most effectual is the use of the mineral acids; occasionally an opposite treatment consisting in the administration of tonic infusions with the addition of the carbonate of soda, combined with rather a generous diet, proves more useful. Local treatment is generally of little avail, because the local disease constitutes but a small part of the disorder, and even if the bronchial irritation be arrested, we may be far from checking the general tuberculous disorder.

In the last mentioned variety, the tubercles do not pass beyond their crude state, but the acute tuberculous disease may assume another form and pass rapidly into softening. These cases are generally dependent upon tuberculous infiltration of the lung, and often begin in the lower lobe. They constitute the variety of disease so common in this country among the negroes, and frequent in France amongst the wild animals kept in confinement at the menageries. It is, perhaps, the most intractable form of phthisis.

There is another variety of phthisis which may demand a modification in the treatment; it is that which is consequent upon an unresolved pneumonia. Although the ordinary pneumonia is not a frequent cause of phthisis, the asthenic varietv is often immediately followed by its developement. These cases demand continued counter irritation, and are almost the only instances of phthisis which may properly be treated by the mercurials.

The treatment of phthisis, as recommended by the author, is in accordance with the views generally received. The local irritation which so often attends it, should be removed by local depletion and other means of a similar character; and by a few appropriate general remedies and change of climate, we should attempt to modify the general constitution. Unfortunately this effort is, in the immense majority of cases, unsuccessful; still we believe that much may be done towards producing a cure in a small proportion of cases, and that we may greatly relieve the symptoms in a larger number.

The tuberculous diseases of children include an important part of the pathology of those affections: we regret that Dr. Stokes's plan did not include them. The key to the study of the general tuberculous disease may be found in the affection as it occurs in children, and by commencing the observation of the disease as it occurs in early life, we become familiar with many facts of importance for its diagnosis.

The diseases of the pleura are of less difficult diagnosis than those of the lung, and do not require the same minute examination. With them terminates the interesting work of Dr. Stokes; a second part will probably include the diseases of the heart. W. W. G.

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ART. XII. "*Des amputations dans la continuité et la contiguité des membres; leurs avantages et leurs inconvéniens.* Par C. E. SEDILLOT. Paris: 1836. 8vo. pp. 80."

On amputation at the joints and in the middle of the limb. By C. E. SEDILLOT. Paris: 1836.

Amputations at the joints, from having been in common use among the ancients, had almost fallen into oblivion when in the early part of the last century attention was again directed to them by Morand, Heister and Brasdor, who adopted the practice, and urged its more frequent employment. They showed by facts collected in their writings, the peculiar fitness of these operations to certain cases, and the facility of their execution, at the same time that they exposed the exaggerated statements which had been made in regard to their dangers. The success of these endeavours to revive them, was, however, only partial, and it remained for some of the French surgeons of our own time to bring them fully into notice. The more recent investigations of Larrey, Lisfranc, and Velpeau, at the same time that they have tended to make known their true dangers, have set forth their advantages, and pointed out the joints to which they are especially applicable.

The work of M. Sédillot is a brief and well written exposition of the comparative advantages of amputations in the continuity or middle of a limb, and those in the contiguity, or at the joints. In the first part of it the question is considered generally. In the second, the operations are treated of individually, and in both attention is more particularly directed to amputations in the contiguity from the latter being those which at this time demand most the attention of the profession.

The principal advantages offered by amputations in the contiguity are, 1st. The rapidity with which they may be performed. Requiring only the division of soft parts, it is evident that they can be made much more quickly than those amputations in which a bone must be divided. 2nd. They permit the preservation of a portion of the limb which would be lost in other amputations, and of which the utility is unquestioned. Thus the tarso-metatarsal, or Chopart's amputation in the tarsal bones, may sometimes be substituted for that of the leg, and thus prevent a sacrifice of the heel and ankle, the former of which from giving a firm support to the body and offering facilities for the application of an artificial member, and the latter, by preserving its motions, are of immense importance to the patient. The fore-arm in its whole length is much more useful and better adapted for receiving an artificial hand than a fore-arm in part amputated. Besides, by operating in the joints mentioned, we do but conform to that sound principle of always amputating at the greatest possible distance from the trunk, it having been long since established that the further from the body, and the less fleshy the part amputated, the greater the chance of recovery after it. 3d. The pain is much less than in amputations in the continuity. In the latter, the division of the bone itself often causes acute pain, and the dissecting up of the skin and muscles by increasing the duration of the operation, adds greatly to the amount of suffering. A *fourth* advantage dependant on the little time required for these amputations, is the trifling loss of blood which they occasion. By expert operators limbs may be removed at the larger

joints almost without hemorrhage by having the principal branches seized at the moment the flaps are divided, whereas in amputations in the continuity, compression must be maintained during the section of the bone; and, as the circulation in the veins is thereby more or less obstructed, considerable loss of venous blood always takes place. From the slight hemorrhage that need occur they offer a precious resource in subjects already much enfeebled, and who could not support without increased danger a loss of blood however slight. Disarticulations are also less likely to be followed by inflammation of the medullary tissue of the bones than where a section of these is required, and owing to the muscles not being divided, there is less subsequent danger of spasm of the stump and projection of the bone.

It has been said that reaction is more violent after amputations in the contiguity than after those in the continuity of bones, but we are without sufficient proof of the correctness of this assertion, and from *à priori* reasoning we should, with our author, be inclined to doubt it. Cartilages are unorganized and insusceptible of inflammation, and consequently their exposure alone cannot give origin to any febrile symptoms.

The tissues forming the flaps in disarticulations, and the coverings of the ends of the bones, are stated by some authors to be unfavourable to prompt reunion, but we find in practice that union by adhesion generally takes place with greater facility here than in other amputations, and at the smaller joints almost invariably occurs. In proof of this we may mention the success of Alanson, who made perfect cures in fifteen cases of disarticulations of the phalanges in from eight to twelve days, and since his time very numerous examples of rapid recoveries after these operations in the large joints could be cited.

Of late years much attention has been paid to the subjects of phlebitis and purulent absorptions. These are the most frequent causes of death after amputations, and M. Sédillot states are less common after amputations in the articulations than after those in the continuity. This arises, he thinks, from the fact, that the bottom of the wound in the latter presents the rough end of a bone, filled with numerous open veins, always ready to absorb the matter that may be secreted, and to propagate rapidly towards the trunk any inflammation that may arise; whilst in the former, the bone is covered by a smooth substance, free from vessels of any sort, and consequently incapable of absorbing rapidly, or of transmitting readily diseased action to distant parts.

Such are the general advantages offered by amputations in the contiguity, as pointed out in the first part of the work, and we now pass on to the second part, in which their application to the individual joints is treated of. In diseases of the fingers M. Sédillot recommends never to amputate beyond the affected parts; and where this object can be attained by sawing through the phalanges, he advises that we should do this rather than disarticulate them, believing that the immense advantage of preserving even a very small portion of the finger, more than compensates for the longer duration and difficulty of the operation. The same precept is equally applicable to the metacarpal bones, and he correctly remarks, that a surgeon would be in the highest degree censurable who should remove the whole hand in a case where a portion of these bones only are affected. At the same time he observes that where the thumb can be saved, or even a part of a finger, although the rest of the hand be lost, it should invariably be done. With the majority of the French school of the present day, our author thinks it unjustifiable to amputate any portion of the fore-arm, if it be possible to remove the diseased or injured part by disarticulating the wrist.

Amputation at the elbow joint was adopted, and if we may so speak, legalized, by M. Dupuytren. It is declared by M. Velpeau to be less dangerous than amputation of the arm in its continuity, but M. Sédillot justly thinks that we are not as yet possessed of a sufficient number of facts to substantiate this statement, and prefers, in all cases, removal of the arm according to the common method. Nothing shews more strikingly how much the dangers of am-

putations at the joints have been exaggerated than the results following disarticulation of the shoulder. Dupuytren, who frequently resorted to this operation, states that it is less fatal than amputation of the arm itself. M. Gouraud, of Tours, believes it "scarcely more dangerous than amputation between the joints," and inclines to the opinion that in gun shot wounds it is even preferable. The same opinion has been upheld by Lafaye and Baron Larrey, the latter of whom had ninety-seven recoveries out of one hundred and eleven amputations at this part. Ribes, an experienced army surgeon, has "rarely seen it prove fatal," and M. Blandin says, that ordinarily cicatrization is perfect in less than a month, and that serious accidents are perhaps less frequently produced by it than by amputations in the continuity of the arm above its middle portion. By M. Sédillot, however, the inconveniencies of the operation are thought to exceed those of amputation in the middle of the arm, which he recommends wherever the nature of the case permits of a choice.

When the toes are to be removed, disarticulation is in all cases to be preferred. In cases of gangrene, injuries, or any other cause necessitating a sacrifice of the anterior part of the foot, our author counsels amputation in the continuity of the metatarsal bones in preference to the tarso-metatarsal disarticulation; though at the same time he thinks that amputation of the leg should never be had recourse to, as long as either this or amputation in the tarsal bones can be substituted for it. In regard to amputation in the continuity of the metatarsal bones, we partake fully the opinion of M. Lisfranc, who states, in opposition to our author, that the action of the saw on these small bones is apt to produce inflammation in the neighbouring articulations, and be followed by a tardy recovery.

Amputation in the articulation of the knee has of late years found a warm supporter in Professor Velpeau. In the memoir urging its employment, published by him, fourteen cases of this operation are given, in thirteen of which it had a happy result; from whence he concludes that it is more successful than amputation of the thigh, and recommends it accordingly. Larrey, in his report to the French Academy on this memoir, states that in three instances in which he had employed it, his patients all died. Volpi and Monteggia have also been unsuccessful in trials of it, and M. Velpeau himself has more recently had two fatal examples at La Charité. If to these be added the cases which have not been published, it is probable that the number will more than counterbalance the thirteen cures mentioned. M. Sédillot is of opinion that further observations are required to determine the value of the operation. Disarticulation of the hip is so infinitely more dangerous than amputation of the thigh in its continuity, that no parallel can be drawn between the two operations. During the long period of the French wars it was not unfrequently performed by their military surgeons, and has also been resorted to in their civil practice, but according to our author only two instances of recovery after it have been seen in France. One of these is the case of Perrault in 1773, which is also the second recorded of the operation. The other is the patient of Mr. Guthrie, operated on after the battle of Waterloo. The success reported by Delpech is not counted, as death took place here almost immediately after the cicatrization of the wound.

In this country surgeons have an unwarranted dread of all amputations at the articulations, arising from a commonly received opinion that they are almost invariably followed by severe inflammation and fatal results. That these operations in some of the joints are apt to be followed by unpleasant consequences we are firmly persuaded, but that they are applicable with great benefit in others, we are equally certain. Believing that they are resorted to less frequently with us than they advantageously might be, we have noticed somewhat in detail the above work, in the hope of calling attention to the subject. There is no evidence that the issue of most of them is not as successful as that of common amputations, the fatal results of which in our public institutions are far greater than is usually believed. G. W. N.

ART. XIII. *A Treatise on the Diseases and Injuries of the Larynx and Trachea. Founded on the Essay to which was adjudged the Jacksonian prize for* 1835. By FREDERICK RYLAND, Surgeon to the Town Infirmary, Birmingham. London: 1837. pp. 338.

There are certain parts of pathology which are to some degree neglected, either because they are rare, or are comparatively little connected with other affections. This has been the case with the diseases of the larynx, which are neither trifling in danger, nor so obscurely concealed as to elude ordinary observation. They are, notwithstanding, less known than many less important but more complicated maladies, and the science possesses few or no good monographs expressly devoted to this subject. It is to supply this deficiency that the work of Mr. Ryland was written, "with the hope that it may, at all events, excite more attention to these maladies than they have hitherto received; and that it may afford useful information to those who, from a different direction of their studies, may not have had the opportunity of making themselves sufficiently acquainted with this very important class of diseases."

The work is founded on the essay to which was adjudged the Jacksonian prize in 1835. The credentials of our author are limited to this essay, at least we do not remember to have previously met with any production of his pen. But he has brought to his task habits of skilful observation, and what is perhaps still more important, of critical and careful analysis of the facts already ascertained by previous observers. A work of this kind could scarcely have been prepared from the cases which are presented within the observation of a single individual but moderately advanced in age, however extensive his opportunities may have been; Mr. Ryland has, therefore, most properly not confined his observations to the cases which may have fallen under his care, though as surgeon to the town hospital of Birmingham these have been numerous.

The author is not styled doctor in medicine, but he obviously belongs to that numerous class who, in France and America, would have received this title, the more merited, as the practice of the author seems to be, at least, as much connected with medicine as with surgery. The work is a sufficient proof of the artificial nature of those arbitrary classifications of medical practitioners, which should never be carried further than is suggested to each individual by the natural bent of his character, or by the circumstances which may chance to favour his success in a particular department of his profession. It is a proof too, if any were needed, of the devotion to science which is displayed by a numerous class of practitioners, who are scattered throughout the provincial towns of England, and know how to profit by the ample stores of pathological facts which they gather amidst the numerous ailments incident to an impoverished manufacturing population.

The arrangement of the work is such as is naturally suggested in a treatise devoted to the diseases of a particular organ, and of course commences with acute inflammation of the larynx. The remarks on the necessity of vigorous treatment to arrest the inflammation of an organ, which is so essential to life, that a degree of thickening scarcely appreciable in other structures necessarily proves fatal, are judicious, but cannot add much to what we already are familiar with. If active blood-letting, followed by antimonials, and if time allows, by mercury, should fail, the operation of bronchotomy is advised without waiting for those imminent symptoms of danger which will almost always render it useless. Of six cases in which it was performed by himself or others, four recovered, and in the two others some temporary relief followed. Of twenty-eight cases which he has found recorded, ten recovered. But even this proportion may be exaggerated from the natural disposition felt by all men to pass lightly over their unsuccessful cases.

We are, however, by no means convinced of this conclusion of our author, as to the mortality, unless the term laryngitis should be restricted to the most violent cases of inflammation; for there are certainly lighter forms of acute irritation of the larnyx, in which the ordinary symptoms of inflammation are sufficiently well marked for us to admit its existence, and which yield readily to treatment. But these are not cases in which the voice has become decidedly stridulous, or in which the respiration is very much impeded.

Œdema of the glottis is an inflammation of the submucous tissue of the upper part of the larynx, with but little affection of the mucous membrane. In addition to the ordinary signs of subacute inflammation, such as heat and stricture, the diagnosis may be rendered much more certain by holding the mouth open with a piece of wood introduced between the teeth, and then depressing the tongue, when two smooth tense tumours can often be detected just behind the epiglottis. The epiglottis itself does not usually present that erect tumefied aspect peculiar to acute laryngitis. Calomel, and blisters to the nape of the neck, with copious leeching over the larynx, are the remedies advised; if they fail, the operation of tracheotomy should not be delayed.

Erysipelas of the face may extend into the fauces and give rise to fatal laryngitis; but there is besides a form of idiopathic inflammation of the fauces and larynx which seems to be of the erysipelatous kind. It is most frequent in hospitals where erysipelas happens to prevail, and under these circumstances was several times observed at Birmingham. In this form of disease, the author rather objects to bleeding and depressing remedies, relying upon leeching and a blister to the upper part of the sternum or to the back of the neck. With these local remedies, general treatment of a tonic character, as quinine, wine, and good diet, may become necessary.

Chronic laryngitis is a more frequent affection than the acute forms of the disease already described. It is very often mortal; at least it is often the precursor of diseases which terminate in death. There is a subacute variety of laryngitis in which the symptoms are neither so violent nor so rapid as in the more severe forms, but which is important enough to attract the attention of physicians. This variety is rather overlooked by Mr. Ryland, but it has occurred to us within the last two years more frequently than any other form of laryngitis, and in several instances it proved fatal. Ulceration of the cartilages did not take place in these cases.

The true chronic laryngitis assumes different forms; in the slightest, there is a mere thickening and granular aspect of the mucous coat, which renders the voice harsh, but it is not injurious to the general health, except that it disposes to returns of the same disease. Sometimes the thickening of the mucous coat may extend to the formation of vegetations analogous to the mucous tissues, which cause some danger to the patient from the rapid closure of the larynx which may follow a very moderate attack of inflammation. Ulceration of the mucous coat is the variety which is most commonly associated with phthisis; it appears first in the mucous follicles, extending from thence to the coat of the tissue of the larynx. These ulcers may attack all parts of the larynx, and are extremely common about the vocal ends, when they destroy the voice, or at least render it hoarse and rough.

The ulcerative laryngitis scarcely ever occurs except from phthisis or syphilis. In the latter case the ulceration passes from the pharynx downwards towards the larynx. But in the phthisical varieties, the disease seems to begin in two ways. The tuberculous deposit may occur in the follicles of the larynx, and ulceration may follow by a progress similar to that which occurs in the follicles of the intestines. This undoubtedly happens in a certain proportion of cases of chronic laryngitis which terminate in phthisis and its usual tuberculous deposit in the lungs. The second variety is more frequent, that is, simple follicular inflammation of the larynx, arising from the ordinary causes of

inflammation, or produced in the latter stages of phthisis by the continual passage of the irritating matter of softened tubercle over the mucous coat. When it occurs towards the close of phthisis, we can readily foresee its cause and understand the difficulty of removing it; but we cannot determine why this chronic inflammation should so often appear as the first symptom of a series which terminate in tubercular disease of the lungs and death. The tubercles in the lungs are probably not present at the earlier stages of the laryngeal inflammation, at least we have the strongest possible evidence that such is not the case. In some patients there is a gradual extension of the irritation along the trachea until the symptoms of tubercles are developed in the chest, at the same time that soreness and pain are felt in that part of the trachea which lies beneath the sternum; in other cases, the pectoral symptoms begin at once, without apparent extension of the inflammation along the mucous coat. Whatever may be the particular course of the disease, the rule holds good that severe chronic inflammation of the larynx, if tolerably severe, is, in the immense majority of cases, a symptom of a form of tuberculous disease which, though slow, is of the most intractable nature.

This fatal law extends in some degree to those slighter forms of chronic disease in which the voice is roughened, but where there is neither pain nor oppression. Still the exceptions are the more numerous, and some patients pass through life without other signs of a tuberculous diathesis.

The cartilages of the larynx are occasionally affected with ulceration, constituting true laryngeal phthisis, and known by the local signs of irritation of the larynx and extreme fœtor of the expectoration. Such cases generally pass into confirmed hectic, although the immediate cause of death is usually an attack of acute inflammation which closes up the orifice of the glottis.

Mr. Ryland gives two cases of simple chronic laryngitis followed by a cure. They were relieved by local treatment, but did not finally recover until a slight ptyalism was produced. We only regret that the proportion of cases of recovery where the symptoms were severe, is not given. We fear it would have been lamentably small. Ulceration occurring in chronic laryngitis is admitted by the author to be rare, except as a complication of phthisis, in which case it can only be treated by palliatives. When necrosis or ulceration has attacked the cartilage, a cure is nearly impracticable, but some relief may be obtained by the usual palliatives; in cases of a venereal origin, we may with propriety have recourse to mercury.

The affection of the throat so common in this country of late years, and especially frequent amongst clergymen, is not mentioned by Mr. Ryland. This variety usually begins in the pharynx and soft palate, and does not always extend to the larynx. When it is confined to the pharynx, there is merely a smooth shining redness of the mucous coat, and sometimes elongation of the uvula. If the disease should go no farther, the general health is but little affected, notwithstanding it may continue for years; but if the larynx and trachea be involved, pulmonary phthisis frequently ensues. This disease is extremely troublesome, interfering with the duties of clergymen, and sometimes permanently destroying their health. The mode of treatment generally adopted is the use of astringent gargles; sometimes stimulating, at other times mild mucilaginous applications, with various cutaneous external revulsives. The general treatment is limited to means calculated to increase the vigour of the constitution.

The observations of the author relative to croup are sound and clear: the plan of treatment consists in the usual combination of depletion with antimonials, external revulsives and mercurials. The latter are properly prescribed in the second stage of croup when the active inflammatory symptoms are succeeded by the secretion of false membrane. We agree with him that mischief is often done by injudicious blood-letting when the period of secretion has

occurred; especially in the pallid feeble children who are frequently the subjects of croup. Mr. Ryland refers the croupal sound to the presence of false membranes in the trachea, instead of the larynx, which opinion would seem to be proven by cases in which the disease was confined to the larynx. The voice was then stridulous and the respiration impeded, but the peculiar wheezing sound, characteristic of true croup, was not heard. The results given by M. Double, from an analysis of the cases reported by a great number of authors, would show that the mortality of croup has been steadily decreasing; though it still bears an immense proportion to the whole number of cases. Such analyses, however, are rather doubtful when applied to a disease of which the diagnosis is so difficult as croup, and which may so readily be confounded with spasmodic affections of the larynx. We believe, however, that the statement is correct when applied to the variety of croup which commences in the larynx and upper part of the trachea. But whether it is equally applicable to the more fatal and insidious variety in which the false membrane is chiefly developed in the bronchial tubes, may be doubtful. The operation of bronchotomy for the relief of croup is properly reprobated. We see no reason for its performance. No one dares to suggest it, except when all ordinary means have failed; and the fact of the very frequent existence of false membranes throughout the greater part of the bronchial tubes, is enough to show its inutility.

M. Bretonneau, of Tours, described some years since, an epidemic disease of the throat which occurred in that city, and was so similar to croup as to be considered by him identical with it. In this opinion most pathologists do not concur; they regard it as distinct from croup, both in its origin and progress, although in an *advanced* stage it is so analogous in results and pathological lesion as to differ but little from genuine croup. The cases described by Dr. Louis as croup in adults seem to have been of the same character as the diphtheritis of Bretonneau. The affection is usually epidemic, and is often associated with scarlatina; sometimes it is merely sporadic. Bretonneau regarded it as contagious. The affection commences with some of the general symptoms of inflammatory disease, and with soreness at the fauces; soon after a whitish coating of lymph may be detected on the pharynx, and sometimes on the tonsils and uvula. From thence it may extend to the larynx, and the usual symptoms of laryngitis supervene. General blood-letting was rarely borne in the epidemic at Tours; Bretonneau relies chiefly upon topical applications to the fauces, as powdered alum, muriatic acid applied by means of a sponge, or a solution of nitrate of silver. When the false membrane is destroyed by these means, the inflammation is usually checked in its progress, and prevented from extending towards the larynx.

Spasm of the glottis is a disease often confounded with croup, but distinguished from it by the suddenness of the attack, by the noisy croup-like inspiration, and by the short duration but frequent return of these paroxysms. It is the false croup of some authors, which is quickly relieved by antispasmodics or nauseating remedies. Mr. Ryland is inclined to the opinion of Dr. Ley, who refers it to the pressure on the recurrent laryngeal nerve by enlarged glands or other tumours. Thymic asthma is a modification of the same affection, arising from an enlargement of the thymus gland, and is much more intractable. The paroxysms of asthma are usually relieved by the warm bath, emetics, and bleeding. We must then, if possible, remove the cause of the disease. When this depends upon scrofulous enlargement of the glands of the neck, the remedies must of course be adapted to the treatment of scrofula.

The remainder of the work is devoted to the surgical affections of the larynx, to which little new is added. These lesions are better understood than other diseases of this organ which are strictly medical. They are treated in a manner highly creditable to the author, but do not require a particular analysis.

W. W. G.

ART. XIV. *Transactions of the Statistical Society of London.* Vol. I. Part 1. 4to., pp. 148. London: 1837.

The scope of inquiry embraced by the Statistical Society of London, comprehends the collection, concentration, and diffusion of statistical knowledge upon all subjects. The portion of the volume before us, contains observations and suggestions respecting many of the most important subjects which call for the attention of those administering the affairs of the British government. After this comes an *Analysis of the Statistical Documents respecting France*, by T. R. PRESTON, Assistant Secretary to the Society. Under the immediate superintendence of the French Minister of Commerce, the most elaborate and complete series of statistical publications are prepared, in conformity with the instructions of the Chamber. One of the individuals to whom the arduous task of compilation and arrangement is principally intrusted is M. Moreau de Jonnés, who stands in the foremost rank of statistical investigators.

The first general division and tables relate to the extent of territory and its physical and agricultural distributions. The second relates to the population, showing its distribution, &c. and is subdivided under the following heads:

I. General tables of the population, viz:—*a.* Former population, decennially from 1780 to 1831. *b.* Present population. *c.* Population stated according to the extent of territory in 1791, 1811, and 1831. *d.* Population stated according to the civil division of individuals. *e.* Population of cities and towns. *f.* Population stated by parishes (communes).

II. Movement of the population, viz:—*a.* Births, marriages, and deaths, in each of the departments. *b.* The same in the chief towns. *c.* Summary of the movement of the whole population. *d.* Foundling children.

The population as divided into classes, is as follows, according to the census of 1831, viz:

Males.	Children and bachelors,	8,866,422
	Married,	6,047,841
	Widowers,	722,611
	Military,	303,231
	Total males,	15,940,105
	Children and spinsters,	9,069,923
	Married,	6,056,836
	Widows,	1,502,359
	Total females,	16,629,118
	General total,	32,569,223

There is but little variation in the proportion of males to females in the different departments, the preponderance of females in the greater part of the eighty-six departments being nearly in the ratio represented in the above statement. In the few departments where the males predominate, the excess is very inconsiderable.

Among the new documents comprised in this section is an account of deserted and foundling children, which, the minister observes, "serves very advantageously to replace the many inexact and imperfect records serving heretofore as the basis of all the calculations that have been made on this most interesting subject." The births from 1824 to 1832, including a period of nine years, were, in the whole country, including the capital,

	Legitimate.	*Illegitimate.*	*Foundlings.*
	8,133,123	632,195	301,948
Annual average,	903,680	70,244	33,549

In the department of Seine alone, which includes Paris, the proportions of the three classes differ considerably, being as follows:

	Legitimate.	*Illegitimate.*	*Foundlings.*
	213,822	96,882	49,516
Annual average,	23,758	10,765	5,502

From all which it appears that the proportion of the illegitimate to the legitimate births is, for the whole country, 1 to 13, whilst in the department in which Paris is situated it is as great as 1 to 2.2. So also, the proportion of foundlings, which in the whole country amounts to 1 in 20 of the whole number of births, in the department of Seine is as much as 1 in 7.27.

The term foundling is not employed synonymously with illegitimate, but is applied to children supported by the government, whether born in or out of wedlock. From the year 1824 to 1833, including a period of ten years, the whole number of foundlings was 1,192,043, averaging 119,204 per annum. The whole expense of maintaining them amounted to 97,775,613 francs, being an average of about 82 francs per year for each child. The tables furnish the following interesting facts in regard to the deserted foundlings during the decennial period last mentioned, with the expenses they have occasioned.

The number of foundlings in the hospitals, and houses dependent on them, at the commencement of the first year, 1824, was			116,452
Admitted.	Males,	141,354	
	Females,	137,138	336,297
	Sex not specified,	57,806	
	Total,		452,749
Discharged.	Children arrived at the age when they cease to be chargeable to the hospitals,		78,590
Taken away by their parents or benefactors,			46,025
Died	in the hospitals,	46,755	198,505
	at nurse,	151,750	
Remaining at the end of the last year, 1833,			129,629
	Total,		452,749

Expenses of maintenance and keep of the children,	88,132,712 frs.	09	cent's.
All other expenses,	9,642,900 "	91	"
Making a total of	97,775,613 "	00	"

Average for each child, 82 francs annually.

The mortality of the foundlings is startling, and in relation to this and other matters connected with the subject, much valuable information is to be obtained from the recent work of M. Quetelet, "Sur l'Homme."

In glancing over the tables exhibiting the particulars connected with the internal administration, we meet with the following details:

The number of hospitals and asylums in 1833, in the 86 departments, was 1,329, being an average of 15 in each department.

The total expenditure was 48,842,097 francs, 8 centimes: averaging for each establishment 36,751 frs. 1 cent.

The number of individuals receiving succour from the hospitals and asylums in the year 1833, may be ascertained from the following statement, viz:

Remaining on the 1st January, 1833,		154,253
Admitted during the year,		425,049
Total,		579,302
Removed by death,	45,303	
Removed from cure or other causes,	381,169	
Total left,		426,472
Remaining 31st December, 1833,		152,830
Total,		579,302

The number of "*Bureaux de Beinfaisance*," or Charitable Establishments for the Poor, was 6,275; the total expenses, 8,956,036 francs, 8 centimes.

The total number of individuals succoured at their dwellings was 695,932.

Cholera in England.—From the authentic reports relative to the progress of this epidemic in England, the following statistical facts are interesting. The reports were originally made to the Central Board of Health, and submitted to the Statistical Society by Sir DAVID BARRY, a member of the Board.

Of all the local Boards of Health which were established in Great Britain from the first communication of the existence of Epidemic Cholera in November, 1831, only forty-five sent in statistical returns to the Central Board. These returns comprehend a population of 840,666, of which were attacked 10,918, or one in 77. Of these there died 4,152, or about 2-5ths of the attacked. Of the attacked were, children under 10 years, 2,017; male adults, 4,374; female do. 4,527—10,918.

Died, children, 799; male adults, 1,630; female do. 1,723—4,152.

Treated in hospitals, 2,419; in patients' dwellings, 8,499—10,918.

Died, in hospitals, 1,137; in patients' dwellings, 3,015—4,151.

Classes attacked and dead.—Personal attendants on the sick:—attacked, 150; died, 58.

Washerwomen:—Attacked, 65; died, 36.

Medical Men:—Attacked, 30; died, 6.

Persons in easy circumstances:—Attacked, 442; died, 185.

Comparison of Ages and Sexes attacked and died.—Ages:—Proportion of children to adults attacked, less than *one* child to *four* adults. *Sex:*—Male adults attacked to female ditto, 43 to 45.

Where treated.—Of the whole number attacked 1-4th were treated in hospitals, 3-4ths in their own dwellings.

Died.—Proportion of children to adults, died, *one* child to *four* adults. Died, in hospitals, of all ages and sexes, rather less than one-half of those admitted. Died, in patients' dwellings, 1-3d of those attacked. Deaths of male to female adults,—16 males to 17 females.

The total number of new cases in the whole of Great Britain, including the metropolis, was as follows, viz.:—New cases, 80,203; deaths, 30,927; which shows that about 3-8ths of those attacked by the disease perished.

The table exhibiting the progress of the epidemic in other parts of Great Britain than the metropolis, shows that, from November, 1831, to December, 1832, the total of new cases reported was 69,183, of which the deaths were 25,649; 2ndly. That the cholera attained its acme (London not included) in August, 1832, when the number of cases reported was 20,912; and deaths, 7,635; 3dly, That the new cases during the hottest months, viz.: July, August and September, were almost double those returned for the other eleven months, and nearly two-thirds of all that had occurred during the fourteen months mentioned; 4thly. That the deaths during the hot months were more than three-fifths of the whole number of deaths; 5thly. That the totals of the new cases and deaths, respectively, for the three coldest months, viz.: November and December of 1831, and December, 1832, were considerably less in number than the new cases and deaths of even the healthiest of the other eleven months.

In London, the disease prevailed as an epidemic, (with a short intermission in May,) during ten months of the year 1832, viz: from February 9th to December 31st. The number of cases reported was 11,020; and of deaths, 5,275. The cholera attained its acme in July, when the number of cases amounted to 3,027, and the deaths 1,362. The spread and fatality of the disease during the hot, the intermediate, and the cold months, stand nearly in the same proportions as in the other parts of Great Britain, where the disease prevailed.

Passing over two interesting papers, the one *on the Connexion between Crime and Ignorance*, by G. R. PORTER, Esq.; and the other *on the Increase of Wealth and Expenditure, in the various Classes of Society in the United Kingdom*, by

Colonel SYKES, we come to a most interesting statistical *View of the Births and Deaths in the Prussian States, in the fifteen years from* 1820 *to* 1834. This paper is compiled by M. HOFFMAN, Director of the Statistical Bureau of Berlin, and translated from the German by WALTER RUDING DEVERELL, Esq., Assistant Secretary.

In the Prussian States, (with the exception of Neufchatel, and the Principality of Lichtenberg, which were acquired only in the year 1834,) there were during the fifteen years mentioned:

Males.	*Females.*	*Total.*
3,906,544	3,686,473	7,593,017

During the same period, there died:

Males.	*Females.*	*Total.*
2,814,742	2,642,467	5,457,209

The whole period has been subdivided into five triennial periods, the average number of inhabitants for each being as follows:

1820, 21 and 22 - - -	11,374,563
1823, 24 and 25 - - -	11,960,429
1826, 27 and 28 - - -	12,491,417
1829, 30 and 31 - - -	12,882,535
1832, 33 and 34 - - -	13,256,867

If we compare these numbers with those of births and deaths in the corresponding triennial periods, it will be seen that, on an average of 1,000,000 living contemporaneously, there were annually—

In the years	*Born.*	*Died.*
1820-22 - -	43,709 - -	26,346
1823-25 - -	42,576 - -	26,888
1826-28 - -	40,449 - -	29,183
1829-31 - -	38,380 - -	32,127
1832-34 - -	39,595 - -	31,637

indicating a considerable *increase* in the proportional mortality, and a *decrease* in the births. The last triennial period is in both respects somewhat more favourable than the one immediately preceding.

In the years 1820 to 1822, there was, on an average, one born to very nearly 23 living; and there died one in nearly 38: but, in the years 1829 to 1831, there was, on an average, one born to 26 living; and there died one in something more than 31.

In the whole period of fifteen years, the excess of male over the female births has been never below 5 5-9 per cent., and once above 6 1-3 per cent. The total number of males and females, born in the period named, exhibits the proportion of 10,597 males to 10,000 females, so that, on an average, very nearly 106 males were born for 100 females. This ratio, therefore, somewhat transcends the commonly received proportion of 21 males to 20 females. The author of the paper observes, that the cause of the variation observed in the proportions for single years has hitherto not been ascertained; still, it would appear that this fact is not wholly assignable to mere accident. However, it is worthy of remark that, in the births *out* of wedlock, the excess of males above females is less than the births *in* wedlock. The number of births out of wedlock, in Prussia, in the fifteen years, was:—

Males.	*Females.*	*Total.*
267,258	259,234	526,492

making an excess of males of only about half that observed, when the whole number of births are computed.

Another fact, no less worthy of observation, is the disproportion of sexes in the children of Jews, among whom (supposing the official reports correct) the excess of male children born is much larger than it is on the average of the whole number of births. In the fifteen years from 1820 to 1834, there were

born among this persuasion in the Prussian states,—males, 44,348; females, 39,877—total, 84,225 children: making an average of 11,121 males to 10,000 females, or an excess nearly double that, where all the births are reckoned together. In the single years the proportion varies considerably, the causes of which are not even surmised. This excess of males is not perhaps greater than what is observed in some portions of these United States of North America, and especially in the Western and South-Western States, in which we have shown, in this Journal for November, 1827, that the disparity subsisting between the boys and girls, even so late as the 10th year, is above eight per cent. in favour of the former. If the excess of males at the 10th year be so great, it must have been much greater at birth, and, in all probability, then equal to that of the Jewish persuasion in Prussia. But unfortunately we have no means of ascertaining the proportions of the sexes at birth in the rural portions of our country.

The births producing *two or more at once*, have been separataly registered only since the year 1826, the following being the estimates for the nine years:

Births producing 1.	*Births producing* 2.	*Births producing* 3.	*Births producing* 4.
4,467,031	52,384	659	11

The number of children born was, therefore,—

Births.			*Children.*
4,467,031,	producing	1, - - - -	4,467,031
52,384,	„	2, - - - -	104,768
659,	„	3, - - - -	1,977
11,	„	4, - - - -	44
Total, - -		4,520,085	4,573,820

An examination of the births of individual years shows a steady proportion in those, producing two or more at once, from which it seems probable that births of this class are induced by causes almost if not entirely, independent of fluctuating external influences. With regard to the increase of population, the births producing a plurality of children are of little importance, as the children they contribute to the whole number born, are only about 12 in 1,000; add to which their greater mortality in the first years of life.

In the nine years from 1826 to 1834, the births producing two at once gave,

17,327 pairs of males.
15,888 pairs of females.

Total, 33,215 pairs of similar sex.
Total twins born, 52,384

Thus nearly seven-elevenths of the whole were pairs of *like* sex, and four-elevenths only, pairs of *unlike* sex. It is, however, extremely curious to observe that the proportions of the two sexes differs but slightly from that presented by the total births, there having been born, on an average, for 10,000 females, 10,564 males.

Of the number of births producing triplets,

140 produced each 3 males.
195 „ „ 2 males and 1 female.
167 „ „ 1 male and 2 females.
143 „ „ 3 females.
And of 14 the sex of the children was not reported.

Total 659

Of the 645 births of triplets, of which the sex of the children was ascertained, 977 were males and 958 females, making a total of 1,935 children, the excess of males being a little under 2 per cent. or one-third of the general average.

The births producing four at once consisted of—

1 of 4 males.
1 of 3 males.
4 of 2 males and 2 females.
2 of 1 male and 3 females.
3 of 4 females.

11

These 11 births, therefore, produced 17 males and 27 females.

Although the number of births producing three and four children are too small to establish the truth of a natural law, they afford reason to believe that as the proportion of children at a birth exceed twins, the ratio in the excess of males is reduced, so that in the case of triplets it is only one-third of the general average, whilst in the case of four at a birth, the excess is on the side of the females.

We proceed next to the consideration of the interesting facts connected with the records of mortality and their analyses.

The total number of persons of all ages who died in the Prussian states, in fifteen years from 1820 to 1834, was, according to the official reports, 5,457,209, of which 2,814,742 were males, and 2,642,467 females.

Our author informs us that the age attained is, for the most part, correctly reported, except in cases where life has been protracted to *unusual* length. Among the uneducated classes very old people have, in most cases, forgotten the year of their birth; and the natural desire to attract notice, as instances of longevity, occasions exaggerated statements, when no one of about the same age is living in the neighbourhood who might exhibit the truth of the statement. Hence, then, greatly interesting as it is, for the promotion of the Natural History of Man, to register cases of extreme old age, the Statistical Bureau of Prussia does not insist upon any great exactitude in reporting the ages of those who have died beyond the 90th year; as inaccurate and uncertain information in such cases, can serve only to mislead and occasion fallacious conclusions.

From an examination of the table showing the ages at which the deaths occurred, it appears that there died before the completion of their—

	Males.	*Females.*	*Total.*
3d year, - -	1,180,923	991,533	2,172,456
7th year, - -	202,721	196,889	399,610
14th year, - -	115,720	113,392	229,112
25th year, - -	148,976	128,633	277,609
45th year, - -	281,430	319,723	601,153
60th year, - -	309,295	290,672	599,967
80th year, - -	474,521	495,182	969,703
After completing their 80th year,	101,156	106,443	207,599
Total, as above, -	2,814,742	2,642,467]	5,457,209

The whole number born dead, or which died in the birth, was—

	Males.	*Females.*	*Total.*
	147,705	109,363	257,068
Died in the 1st year, -	715,284	581,540	1,296,824
" 2nd and 3d year, -	317,934	300,630	618,564
" 4th and 5th year, -	129,390	125,919	255,309

Thus it appears that nearly two-fifths of all who died had not completed their third year, and that of the whole 7,593,017 children born in the fifteen years mentioned, there were above one-thirtieth born dead.

The male births were, - - - 3,906,544
The females, - - - 3,686,473

Of which were born dead,

Males, - - - - -	147,705
Females, - - - - -	109,363

Showing that there are only about 200 females born dead to 255 males. Even among the males who have survived the greater perils of parturition, the influence of the sufferings they have undergone remains for a long period apparent. Male children, our author observes, inasmuch as their sufferings have been greater, fall victims afterwards more easily than females to the numerous accidents to which the frail period of early childhood is especially liable.

The ratio of males to females dying after birth and before the end of the first year, is as 200 females to 232 males, a proportion smaller than among the dead born.

The excess of mortality among male children not only in the first year, but throughout many succeeding years, even so late as the 14th, seems to be ascribed, by our author, solely to the influence of the greater sufferings in birth. On this point we, however, think he is mistaken, in proof of which we beg leave to refer to some calculations formerly made by us with a view of tracing out the causes to which the greater mortality of male children is to be ascribed, and where we have demonstrated that they are most liable to death from all diseases of a highly inflammatory character.*

It appears from the statistical tables before us, that in the Prussian states, although the excess of male births amounts to about 6 per cent., yet in consequence of the greater mortality among the males, it has diminished at the end of the first year to 1 3-5ths per cent.

The numerical equality in the sexes at and near the age of puberty, notwithstanding the disparity between the males and females at birth, involves curious reflections in regard to the ordinations of nature. We have before shown that such an equality subsists in our own country, at least so far as the population of Philadelphia is concerned, although the excess of males born exceed the females more than 7 per cent., which is a much larger proportion than the general ratio in the Prussian states. It appears, too, that in our locality the excess of males is not reduced so rapidly, being at the age of five years 5 per cent., whereas in Prussia it is, as above stated, only 1 3-5ths per cent. at the end of the first year.†

The peculiar dangers to which women are subject from the immediate effects of parturition may be estimated from the following facts. Of 448,356 females who died in the Prussian states in the before-mentioned fifteen years, between the ages of 14 and 45, or the period of child-bearing, 70,215, or nearly *one-sixth*, died either immediately in the act of delivery or in the period of child-bed; and of the infants born, 1 in 108 at once cost the mother her life. Notwithstanding this peculiar source of mortality among females, the tables show that there was during the time mentioned, very nearly an equal number of each sex who died at an age of active life, between the 14th and 60th years; namely, of males 739,701; females 739,028. When, however, the periods embraced in the estimate are less, some striking disparities are observed between the ratios of deaths in the different sexes. Thus the deaths between the years of 20 and 25 were 81,096 males, and only 64,184 females. After this and between the ages of 25 and 45 the proportion of deaths is reversed, being 160,391 females to only 133,439 males. From the 46th to the 60th year the male majority is in the largest amount, but after the 60th year and to the latest stages of longevity, the proportion of female deaths is greatest. This, our author informs us, does not proceed from the less longevity of the women, but solely from the fact that from greater temperance in living or other causes, the number of females above 60 is larger than that of the males.

* See this Journal, No. XXXII., for Nov. 1835.

† See this Journal, for Nov., 1831—article Medical Statistics.

The census of the inhabitants shows the average proportions of each sex for the several years from 1819 to 1834, inclusive, at the several ages specified:

Class I.—Children to the completion of the 14th year.

	Males.	*Females.*	*Excess of Males.*
Average, - - -	2,251,180	2,225,402	25,678

Class II.—Persons beyond the 14th, but not having completed the 60th year.

	Males.	*Females.*	*Excess of Females.*
Average, - - -	3,522,523	3,614,806	92,283

Class III.—Persons beyond the 60th year of age.

	Males.	*Females.*	*Excess of Females.*
Average, - - - -	374,476	385,794	11,318 *

Class IV.—Total of all ages.

	Males.	*Females.*	*Excess of Females.*
Average, - - -	6,148,180	6,226,103	77,923

The author remarks, that the close approximation to a numerical equality of the sexes, which, in the war from 1806 to 1815, suffered great infraction, was gradually becoming restored by the natural course of births and deaths, when it was again interrupted by epidemic diseases in the last years, which affected much more destruction among the males than among the females.

The number of deaths ascribed to the mere infirmities of old age constitute nearly one-eighth of the whole mortality. Of those dying after the 60th year, nearly 9-16ths of the men, and as much as 3-5ths of the women are said to have died solely of old age.

Of those who died violent deaths from various accidents during the fifteen years, there were,—males, 69,517; females, 20,849—total, 90,366. Of these the suicides reported were 16,680, viz.: 13,699 males, and 2,981 females. Of the instances of violent death, one in 40 were males, and only one in 127 females.

Small Pox.—Among the various sources of mortality, it is particularly interesting to know the amount caused by small pox, the deaths reported from which, in the fifteen years, was no less than 44,699; those of males being 23,562; and of females, 21,137. The proportion from this disease is, therefore, one in 122 of those from all other sources. In the years 1832, 33 and 34, the proportion increased to 1 in 68 of the aggregate of deaths.

Unable at present to obtain a correct account of the destructive agency exercised by each separate form of disease, the Statistical Bureau of Prussia only presents the mortality from diseases under general divisions, from which it appears that there died during the fifteen years:

	Males.	*Females.*	*Total.*
From Internal Acute Diseases, - - - -	671,213	599,401	1,270,614
„ Internal Chronic Diseases, - -	1,058,144	1,012,144	2,070,288
„ Suddenly Fatal Sickness, - - -	217,206	179,654	396,860
„ External Disorders and Injuries,	60,505	50,016	110,521
„ Undefined Diseases, - - - - - -	245,913	224,334	470,247

The class of diseases which hence appears to have been much the most fruitful source of mortality, even to the extent of 38 per cent. of the whole, is that of *Internal Chronic Diseases*, which comprehends, according to the arrangement adopted in the tables, Intermittent and Irregular Hectic fevers, Hooping-cough, Convulsions, Colic, Gout, Hydrocephalus, Marasmus, Pulmonary Consumption, Dropsy, Asthma, Emphysema, Epilepsy, Constipation, and Mania.

The class of *Internal Inflammatory Diseases* is made to comprise Inflammatory Fever, Pneumonia, Inflammation of the Brain, Quinsy, Measles, Scarlet Fever, Miliaria and Purpura, Diarrhœa and Dysentery.

* In 1819 there was an excess of males amounting to 4,108.

The class of *External Diseases*, comprehends Phlegmon and Gangrene, Strangulated Hernia, Diseases of the Urinary Organs, Malignant Cancerous Ulcerations, the deaths from which present a still larger excess of males than the preceding class.

The number of deaths in the Prussian States, from Hydrophobia, during the nine years in which they have been accurately registered, viz: from 1826 to 1834, was 242 males, 208 females—in all 450.

The facts developed through the labours of the Prussian Statistical Bureau, are certainly of a highly interesting character, and we greatly regret the deficiency which exists in respect to designating those particular diseases most active in swelling the amount of mortality. G. E.

ART. XV. *A Letter respecting Santa Cruz as a Winter Residence for Invalids; addressed to Dr. John C. Warren, of Boston, Mass.* By JOSEPH TUCKERMAN. Boston: 1837. 8vo., pp. 27.

This letter, which was first published in the Boston Medical and Surgical Journal, and has since been issued in a pamphlet form, is an interesting one. The observations of the author, it is true, have not extended over a sufficiently long period, nor are the facts which he has collected either sufficiently numerous or precise, to afford us a satisfactory history of the climate of Santa Cruz, or to enable us to form a definite judgment of the value of this climate compared with that of other localities, in its influence over diseases. Nevertheless the details, as far as they go, seem to have been carefully collected and accord with what we have learned from other sources, especially from our lamented friend the late Dr. Godman, who spent a winter on the island.

The temperature of Santa Cruz, Mr. T. represents as generally a very grateful one to an invalid, and often even delicious. But the heat is sometimes debilitating; and is always too great for either much intellectual or physical effort. The temperature of the night is seldom below 70, except perhaps an hour before day, and Mr. T. never found the warmth so great as to interrupt sleep. He always, he says, slept with a window partly open, taking care that there should not be a current of air over the bed; and, except at the approach of morning, he seldom required more covering when in bed than a single sheet.

Mr. T. resided on the island from the 7th December, (1836,) to the 7th May, (1837,) and has given us a series of thermometrical observations, which he made during that period. From these it appears that the temperature is generally very equable, but on one occasion we observe that the variation was as great as 14½ degrees between half-past six, A. M., and noon.

"It is, however," observes Mr. T., "worthy of observation, that very small changes, as indicated by the thermometer—for example, of three, four or five degrees—are scarcely less felt, and occasion a scarcely less uncomfortable state of feeling, than changes of eight, ten, or fifteen degrees, in our own climate. When the wind comes from the south east, the temperature is as delightful as can be conceived. This is the trade wind. But the wind is hardly less variable there than here. From the east it is even pleasant, and occasions no chill. But when it comes from the north, it is little less uncomfortable than is an east wind with us [in Boston] in July or August. Nor does it unfrequently blow from the north. Nor, when from this direction, is it less disagreeable to those who have been long in the island, and to creoles, than to strangers and invalids. Yet not much will be suffered from it by those who will be willing, during its continuance, to keep within their rooms, or to make the small change which will be required in their dress."

One of the most important advantages, however, of a mild climate, to an invalid, is, the opportunity it affords for exercise in the open air.

"It is," Mr. T. justly observes, "not the least interesting of the objects for which

an invalid leaves home for a warmer climate, that he hopes there freely to go abroad, and to see a softer sky than his own, and to breathe a milder air; and in a walk or a ride, or a drive, to enjoy the beauty of a tropical verdure; and, under all these influences, to feel an exhiliration of his spirits, and a renovation of strength, for which he could hardly have hoped in a confinement here of six months to his chamber."

These hopes, Mr. T. adds, may be realized in Santa Cruz. From about nine in the morning, however, until four in the evening, the heat is too great for out-door exercise, but two hours exercise may be taken in the open air before breakfast by an early riser, and one hour before sunset. The invalid will find, however, that he can walk but little, and he must have at command a horse, a pony or a gig. These may be hired at reasonable prices. The roads throughout the island are highly favourable to the enjoyment of a ride or a drive, being good, and the scenery beautiful, particularly around West End.

The principal town on the island is Bassin, but invalids principally resort to West End, a small town about fourteen miles distant from the former. Mr. T. thinks, however, he should prefer Bassin as a residence, unless there should be a well situated and well kept boarding house established in the country. The rides about West End are the more agreeable, but the loss would be more than compensated for, he thinks, by the gain in respect to light and air, by residing at Bassin. There are several good boarding houses in both towns, and the price of boarding is reasonable, $10 a week.

We must not conclude this brief notice without adverting to the author's warm expressions of gratitude to his physician, (Dr. J. C. Warren,) for his professional attentions. These acknowledgments are alike honourable to the heart of the author, and to the eminent physician to whom they are offered.

Mr. Tuckerman's letter may be consulted with advantage by invalids, who propose passing a winter in Santa Cruz, for the benefit of their health.

ART. XVI. *A Practical Treatise on the principal Diseases of the Lungs, considered especially in relation to the particular tissues affected.* By G. HUME WEATHERHEAD, M. D., Member of the Royal College of Physicians; Lecturer on the Principles and Practice of Medicine, and on Materia Medica and Therapeutics at the Blenheim Street School of Medicine, &c. John Churchill. London: 1837. 8vo., pp. 184. One coloured plate.

In the above work, containing less than two hundred pages, the author endeavours to give an account of the principal diseases of the lungs, their pathology, treatment, &c. He does not inform us for what class of readers his production is especially intended. If written for the use of medical students it seems to us that it treats too slightly of the symptoms and morbid appearances, whilst it abounds too much in doubtful explanations of the phenomena of disease and the modus operandi of remedies. On the other hand, it can hardly be supposed that the author had in view the instruction of his fellow practitioners, inasmuch as we cannot perceive that he has added any thing to the stock of knowledge which we already possess. He is evidently most grievously afflicted with the mania of explaining every thing, and the confidence with which he urges his *rationales* is truly astounding. Without detailing the history of a single case, or giving us any new facts which might throw light upon the diseases of which he treats, he merely traces a brief and very incomplete outline of their causes, symptoms, &c. the substance of which may be found in almost every other work on the same subject. The nature of the diseases, and the mode of production of the principal phenomena, &c. are then explained in a manner calculated to give us a most exalted idea of the simplicity, but not of the profundity, of our author's conceptions. The scantiness of the proofs by

which these explanations are supported, induces us to suppose that he looked upon them as almost self-evident propositions, which when once clearly announced must command universal credence.

Inasmuch, however, as the same views have been repeatedly expressed in a manner not materially differing from that of our author, without obtaining a general assent, it might have been well for the benefit of those who have been hitherto unable to appreciate their value, to have placed them in new points of view, or enforced them by additional arguments. Nothing of the kind, however, is discoverable.

It is really difficult to conceive of any useful purpose which a book, like the one before us, can serve. To students, the study of it would be injurious, because it would lead them to receive opinions for facts, and superficial generalizations for legitimate deductions, whilst at the same time it would tend to make them rest satisfied with the most scanty knowledge of the phenomena of disease. To the practitioner it would be useless, because it would teach him nothing new, and if perchance in perusing it, (which is not very probable,) he should meet with an idea which he did not recollect to have met with elsewhere, he would not find its truth supported by convincing evidence; and consequently if he were blessed with a sound and discriminating mind, he would pass it by as belonging to the thousand and one guesses, which abound so much in a certain class of medical productions, and which serve like a profusion of ornament or a holyday suit, to conceal from the eyes of the uninformed the poverty of the wearer. T. S.

ART. XVII. *A Clinical Lecture on the Primary Treatment of Injuries, delivered at the New York Hospital, Nov. 22nd*, 1837. By ALEXANDER H. STEVENS, M. D., Surgeon to the New York Hospital and emeritus Professor of Clinical Surgery. New York: 1837. 8vo. pp. 34.

This though termed a clinical lecture cannot strictly be regarded as such. It, however, contains some sound advice relative to the primary treatment of injuries. The distinguished lecturer, reprobates very justly the use of the lancet during the collapse from severe injuries, and indicates the proper course to be pursued in such cases. In noticing the writers who have treated on the subject, he might have referred to an excellent paper ("on the abuse of bloodletting in recent accidents,") by our colleague Dr. R. Coates, published in the *North American Medical and Surgical Journal*, Vol. I. p. 275, (for April, 1826.) We may notice a mark of inadvertence, in the repetition and in the same words at page 28, of the instructions relative to the method of inducing patients to swallow, given on page 23.

We propose to notice this lecture more particularly when we receive the remainder of the series of which this is the first.

ART. XVIII. *An Experimental Essay on the relative Physiological and Medicinal Properties of Iodine and its Compounds; being the Harveian Prize Dissertation for* 1837. By CHARLES COGSWELL, A. B., M. D., Member of the Royal College of Surgeons, &c. &c. Edinburgh: 1837.

This is a very elaborate and complete monograph; comprising not only a digested summary of what was known relative to the physiological and medicinal properties of iodine and its compounds, but also much new and valuable information derived from numerous experiments instituted by the author. It is an important contribution to therapeutics. We regret that our limits at present, restrict us to a mere notice of the work, but we shall take an early opportunity to enrich our pages by extracts from it.

ART. XIX. *Plates of the Cerebro Spinal Nerves, with references; for the use of Medical Students.* By PAUL B. GODDARD, M. D., Prosector of Anatomy in the University of Pennsylvania; Member of the Academy of Natural Sciences, of the Philadelphia Medical Society, &c. Philadelphia: J. G. Auner. 1837. 4to. pp. 60, and 12 plates.

This is a very useful book for medical students, and we ought at an earlier period to have invited attention to it; the omission to do so was purely accidental. There is no portion of our structure in the study of which the student encounters more difficulty, and none of which a thorough knowledge is more important than of the nervous system. To dissect these parts so as to study their course and relations, is a labour beyond the ability of most students, and yet to say nothing of this information being essential to all physiological knowledge—no one without possessing it can understand the pathology of many diseases or be a good practitioner. Dr. Goddard is, therefore, entitled to the gratitude of students for the assistance he has afforded them by his publication, in this important branch of their studies. It is true that similar ones were already extant, but they were either too expensive, or too imperfect. Dr. Goddard's plates, on the contrary, are sufficiently well executed and accurate, and at the same time afforded at a price which places them within the means of nearly every student.

ART. XX. *An Introductory Lecture to the course of Surgery, delivered to the Students of Washington Medical College, of Baltimore.*—By JOHN R. W. DUNBAR, M. D., &c. &c. Baltimore: 1837. 8vo., pp. 28.

The author of this lecture expresses some fears, and we think with much reason, that its publication will not be likely to gain him reputation as a writer. It is indeed deficient both in originality and good taste. But the Professor has exhibited himself to be so decided a ladies' man, devoting almost as much of his lecture to compliments to them, as to what may perhaps be considered the more legitimate objects of his professorship,—that we might incur some risk were we to indulge in criticism. We must venture, however, upon a single quotation; a precious morceau for any one who may be collecting examples of bathos.

After stating it to be his "advice always to devote much attention to the better portion of creation," and that he "should think it very *impolite* to go through a whole lecture, without noticing a large portion of his auditors,"—our gallant author exclaims:—

"Who is there that should be more willing to pay a just tribute to their merits than the physician? Have I not seen them submit with unflinching fortitude to the most terrible operations, such as the lords of creation would yell and groan most piteously a."

ART. XXI. *Introductory Lecture to the course of the Institutes of Medicine, delivered in the University of Pennsylvania, November 6th, 1837.* By SAMUEL JACKSON, M. D. Philadelphia: 1837. 8vo., pp. 30.

This, like every production of its author's pen, shows that he possesses no common mind. He has reflected much and well on medical subjects, and his views are never trite or superficial, but always striking and ingenious. In the present lecture he presents us with a clear and philosophical view of the nature and relations of our science, and we regret that we cannot transfer the whole

of his remarks to our pages; but the space at our command restricts us to the following observations.

"*Medicine* is an *art* and a *science.* It is an art, as from the necessary connexion and succession of the phenomena that occur in the actions of the animal economy, axioms can be established and practical rules can be laid down, applicable to a great extent in the treatment of disease, especially those of ordinary occurrence. In this character it is *empirical.* Let us be understood. There are different kinds of empiricism. Empiricism may be gross and vulgar, as it is presented in the rapacious and ignorant quack, who, with his nostrum, pretends to possess a cure for every malady; or, it is enlightened and intelligent, drawing its resources from the recorded observations of instructed and experienced physicians, whose lives have been devoted to the healing art. For the most part, with the knowledge we possess, medicine cannot rise to higher pretensions in its practice. Happily, in a vast proportion of diseases, the accumulated experience of the profession has discovered the characteristic signs by which most diseases may be known; the methods of treatment applicable to them; the kind of remedial actions that either favour the natural recuperative movements of the economy, or do not absolutely destroy them.

"Diseases, as respects their natural termination, may be thrown into three classes. 1st. Those in which the powers of the constitution are perfectly capable, aided or not by treatment, for the removal of the disease, and the recovery of the patient. Many cases of this class recover, though the patient by his folly, the physician by his ill-timed interference and remedies misapplied, are calculated to oppose it. Cases of this class furnish to ignorant pretenders the mass of their boasted cures.

"2nd. Those in which the unassisted powers of the constitution are, of themselves, inadequate to protect the organism from the ravages of disease. A judicious treatment and appropriate remedies, aiding and directing the efforts of the economy, regulated by the nature of the symptoms, and guided by reason and experience, are here interposed with the happiest results. It is in this class that learning, talent, skill, display their triumphs; that the *medical practitioner* stands unrivalled—the solace of the suffering—the hope of the despairing. It is for its important services in this class of diseases, that the *medical profession* must ever hold its elevated position in society, and be incorporated with its highest interests. In the calm or the steady breeze, the barque may be intrusted to a common steersman's hand; but in the fury of the storm, in difficult straits, and on unknown shores, it is the disciplined pilot, skilled in all the resources of his art, that can alone carry it safely through the conflict of elements in which it is involved, and the doubtful passes it encounters.

"3d. Those, that from the exhaustion of the constitution, its original feebleness, or the intensity and violence, or the peculiar character of the disease, a fatal result must ensue. Medicine may oppose a resistance; it may delay, it may palliate, it may alleviate, but for a cure it has no power. *The victim must fulfil his destiny.*

"Medicine, cultivated as an art, can never reach beyond a certain degree of perfection. From the complication and mutability of the organic phenomena, numerous exceptions are constantly arising, to which experience and established rules of practice cannot apply. They stand isolated. Nosology has no niche in which they can be placed. Experience has stored up no remedy that has been prescribed. To every physician of extended practice, such cases are of almost daily occurrence. In these circumstances it is that science is indispensable; that principles in medicine can alone be relied on. Like the compass directing the mariner over the trackless deep, they will guide him to his object with certainty and success.

"That medicine is a science, as well as an art, admits of no doubt. That it is capable of principles to be relied on, and of explaining the production of phenomena, who will question? But where are we to look for those principles; what is the character of this science? It is in the study of organization, human and comparative, the analytical study and examination of all organic phenomena, with their arrangement according to the especial class to which they belong, from which will spring forth the philosophy of medicine in the vigour and beauty and excellence of truth."

QUARTERLY PERISCOPE.

FOREIGN INTELLIGENCE.

SPECIAL ANATOMY.

1. *Malformation of the Heart.*—Professor Holst, in a recent number of *Hufeland's Journal*, (*Jan.* 1837,) records a remarkable example of this which he met with in a child who enjoyed perfectly good health until she was two years old, when her skin began to become blue, especially at the parts most distant from the heart. She then experienced feelings of suffocation, giddiness, and spasms. These attacks were usually followed by sleep, after which the blueness of the skin was less. Violent palpitations of the heart, with difficulty of breathing, coldness, and frequent hæmorrhage from the nose, gradually succeeded; and though their frequency diminished, yet their violence and duration gradually increased. During the paroxysms, the left side became colder than the right, and the pulsations of the arteries at the wrist of the left arm could not be felt. She died suffocated in one of these paroxysms.

The following were the chief results of the *post-mortem* examination:

The heart was very large, and its right side was larger than its left. There was a communication between the two auricles, not only by the foramen ovale, which remained open, but also by an abnormal opening. The aorta and the pulmonary artery arose from the right ventricle. These arteries and all the others were smaller than natural. The lungs were remarkably small, and the thymus gland was unusually enlarged.

From the above arrangement of parts, it follows that there must have been a mixture of the venous and the arterial blood. As, therefore, the blood received by the lungs was partly venous and partly arterial, and the calibre of the pulmonary artery was small, the imperfect developement of the lungs is accounted for. The large size of the veins and the venous nature of the blood depended on the double communication between the cavities of the heart and on the mixture of the two kinds of blood. The large size of the thymus gland is curious; for its enlargement is always found to accompany the permanent openness of the foramen ovale.

The left subclavian artery arose from the upper angle of a triangular sac, into the two other corners of which opened the left vertebral artery and an abnormal canal, occupying probably the place of the passage of the foramen ovale. By this last the subclavian artery was in communication with the left branch of the pulmonary, but as this canal was very small but little blood could enter into the subclavian artery. It seems to have received most of its blood from the left vertebral; so that the blood, in getting from the aorta to the left subclavian, must have passed through the carotids and the circle of Willis. This descending

current would meet the opposite one coming through the abnormal canal, and the resistance between the two columns probably caused the triangular dilatation above alluded to. It accounts for the difficulty in the blood's reaching the left brachial artery, and for the cessation of the beating of the pulse and of the diminished temperature of the left arm.

2. *Preservation of dead bodies for dissection.*—The Academy of Sciences of France, has awarded a prize of 800 francs to M. GANNAL, for his method of preserving bodies for dissection. The process consists simply in injecting an aqueous solution of an aluminous salt by one of the carotids: some pints are sufficient; after it the body may be preserved exposed to the air for a long time without putrefaction, and sometimes at last dries, and is mummified. He uses acetate of alum, prepared from the acetate of lead and sulphate of alum and potash; and five or six pints, of a strength that will mark 18° on Beaume's areometer, (equal to a specific gravity of about 1·140,) are sufficient to preserve a body for five or six months.

He has also used simple sulphate of alum for procuring the acetate. With one kilogramme of common sulphate of alum, in lumps, 250 grains of acetate of lead, and two pints of water, a mixture may be obtained sufficient to preserve a body four months; or common sulphate of alum alone will make one keep for two months.

The Commission has reported not only according to what it had itself seen, but has taken the opinion of persons better practised in such things than themselves; and the answer was unanimous, that by the proceeding above mentioned, bodies may be preserved, without smelling, for a month, six weeks, or more, according to their previous condition, the state of the atmosphere, &c.; and that consequently this is a discovery of considerable importance to those engaged in dissecting, removing entirely all that is disagreeable in that study, and all that is perhaps insalubrious, and enabling them to prolong with safety their dissections of the more minute parts.—*London Med. Gaz., Sept.* 1837.

GENERAL ANATOMY AND PHYSIOLOGY.

3. *Existence of Germs in the Fœtus.*—M. CARUS communicated to the Royal Academy of Sciences of France, at their session on the 7th of August last, the results of his investigations for the determination of the period at which the ova may first be found in the ovaries of mammalia in general, and of the human species in particular.

He has especially examined the ovaries of newly-born calves; and he has advantageously employed with his microscope the *compressorium* of Valentin and Wagner.

In the calf, immediately after birth, he has succeeded not only in extracting completely the whole Graafian vesicle, but also, by tearing this cautiously asunder under the microscope, he has found the little ovum itself swimming in the discus proligerus, in the midst of the granular liquid which the vesicle contains. The little ovum thus demonstrated, shows very distinctly the chorion, the yelk, and the primary vesicle with its germinal spot, just like (except as regards size) the ovum removed from the vesicle of the cow.

Last spring the author extended his observations to the human species. He could not discover the Graafian vesicle with the liquid surrounding the ovum in the ovary of a female infant, which died four hours after birth; but by cutting thin slices of the ovary, and slightly pressing them beneath the microscope, ova were very distinctly seen, perfectly indicated by the vitellus and the primary vesicle, and still closely enveloped by the substance of the Graafian vesicle and the ovary.

It was quite different with the ovary of a female child, eighteen months old. Here several vesicles of a quarter or even half a line in diameter were seen; and though the child had suffered from rickets, and there was sanguineous infiltration of the uterus and the ovary, and even a little blood had penetrated into the liquid of some of the vesicles, and had dissolved the little ovum, yet in one of the largest it was found distinctly formed, while others presented only the whitish circle of

albumen, with the vitelline membrane and the chorion, and the substance of the vitellus distinguished towards the discus proligerus by its fine globules, though the line of demarcation was not everywhere regularly traced.

In the ovaries of a child of 4½ years old, the same objects had a greater developement. Here each ovary contained a Graafian vesicle, completely developed, of a diameter of six-eighths of a line. After both had been removed and torn under the microscope, there issued from each an ovum of the diameter of one-twelfth of a line (Vienna measure,) with the vitellus, the primitive vesicle, and its germinal spot, all perfectly marked, swimming in the liquid, which contained besides some globules. There was also, in the substance of the ovaries, a number of little ova of greater or less size, of diameters of one-sixtieth, one-twentieth, or even one-fourteenth, of a line, all still closely enveloped in their vesicles.

It results from these observations that, 1st. The ova, those germs of the future existence of men, are formed before the birth of the female individual, so that, towards the end of gestation with a female fœtus, three generations incontestably exist in a single individual. 2nd. Early after the birth of the female, and at least from the first year of her life, there are developed round several of the ova the vesicles or follicles of the ovary, so that the coverings of such an ovule are already essentially the same as at the time of puberty. 3d. When, by the enlargement of the vesicle, and the effusion of the liquid, the mature ovum is more isolated from the substance of the maternal organs, it remains in a state of latent life for a greater or less number of years, till, by the act of fecundation, it is drawn from this dependent state to a further developement.

It results further, adds M. Carus, that when we wish to enumerate all the periods of human life, we must proceed nearly as for the vital periods of the insect, in which we distinguish the ovular life, that of the larva and chrysalis, and that of the perfect insect.—*Gazette Médicale de Paris*, Aug. 12, 1837.

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4. *Five children at a Birth.*—It is stated in *Kleinert's Repertorium*, that on the 22nd May, 1836, the wife of a labourer in Petersburg was delivered of five girls; and that four of them were alive and perfectly well.

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5. *Causes of erection of the Penis.*—Krause thinks that this phenomenon is not sufficiently explained by the active pouring of blood by the helicine arteries into the great venous cells, as demonstrated by Müller; for he finds that it is not possible, by injecting thin fluids, to give the penis the degree of firmness and tension which it has in complete erection during life, unless the venous trunks at its root, or in the pelvis, be accurately compressed to prevent the injection passing out of them as fast as it is thrown into the arteries. He considers, therefore, that some plan must exist by which a similar retardation of the exit of the blood is effected during life; and this he thinks is the office of the musculi ischio-cavernosi and bulbo-cavernosi,—the ischio-cavernosus of each side arising from the inner side of the ramus of the ischium and os pubis immediately over the crus penis, round whose under and outer surface it winds, and inserted in part into the fibrous covering of the penis, and in part by a thin aponeurosis in the back of the penis, and into the ligamentum suspensorium, meets the aponeurosis of that of the opposite side over the vena dorsalis penis, and by the attachment of its edges to the fascial covering of the penis serves to maintain that tense. By this winding course these muscles are able in their contractions to compress all the deep veins of the corpus cavernosum in the crura penis against the rami of the ischia and ossa pubis, and by the firmly fixed aponeuroses meeting in the median line the vena dorsalis penis.

The bulbo-cavernosi, by their contraction, have, it is probable, a similar power of compressing the veins of the corpus spongiosum urethræ. Under the influence of peculiar excitement, these muscles enter into a kind of tonic spasm or involuntary contraction, at the same time that the increased activity of the flow of blood in the helicine arteries takes place; and both these circumstances are necessary to complete erection. In very young children, and even in new-born infants, erection may take place, and they are found to have both helicine arteries and well-developed cavernous muscles; but in old men, in whom it occurs very rarely and insufficiently, the musculi ischio-cavernosi are thin and pale, or almost en-

tirely tendinous, though the helicine arteries are still perfect.—*London Medical Gazette for* August, 1837, *and Müeller's Archiv. H.* 1. 1837.

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6. *Second Report of the Sub-Committee, appointed by the British Association to investigate the motions and sounds of the Heart.* This was read by Dr. CHARLES WILLIAMS.—Before describing their last investigations, the committee stated that they had found frequent opportunities of confirming the conclusions of their former researches on the natural sounds of the heart; and these conclusions not having been shaken by any subsequent experiment, or well-founded objection, the committee consider them established; viz: that the first sound of the heart is *essentially* caused by the sudden and forcible tightening of the muscular fibres of the ventricles when they contract; and that the second sound essentially depends on the reaction of the arterial columns of blood on the semi-lunar valves of the arterial orifices, at the moment of the ventricular diastole. Certain other circumstances were stated, as being capable of adding to or modifying these sounds.

The chief subjects of their present inquiry were, the unnatural, or morbid sounds, sometimes heard in the heart and arteries; and in investigating the causes of these sounds, which Laennec compared to blowing, filing, sawing, purring, and cooing, or musical sounds, they sought to determine, 1st, What is the essential physical cause of these sounds; and 2nd, in what manner disease can develop this physical cause: a correct answer to these inquiries would determine the value of these sounds as signs of disease.

The committee found that they could produce precisely the same sounds in every variety by impelling, in various modes and degrees, a current of water through Indian rubber tubes; and by numerous experiments, they ascertained the relations which the character of these sounds bore to the nature of the impediment, and to the force of the current. They obtained similar results on experimenting on the arteries of living animals; and discovered, that in the human subject the same sounds may be produced by simple pressure, not only in the arteries, but in the veins also. They found that the sounds heard in the neck, described by some eminent French writers under the names "bruit de diable" and "bruit de mouche," as signs of a particular morbid condition, which requires the use of certain remedies, may be produced at will, by the pressure of the stethoscope on the jugular veins of the healthiest persons; and is, therefore, not necessarily a sign of disease, but has probably been accidentally caused by the same pressure, in many cases in which it has been considered as a morbid sign.

The committee conclude, in answer to the first inquiry, that a certain resistance to a moving current is the essential physical cause of all the various sounds in question, and that this resistance is generally given by some pressure on, or impediment in, the tube through which the current moves; but that sometimes the resistance is caused by a change in the direction of the current, by which it is made to impinge on the walls of the vessel which contains it.

The second inquiry the committee think can be fully answered only by extensive clinical and pathological observation, with due regard to the previous investigations; but they have planned some experiments that promise to elucidate certain obscure points of the pathology and diagnosis of diseases of the heart and arteries, the knowledge of which would be of direct practical advantage. These points the committee propose to investigate if the association think fit to re-appoint them to this office.—*Lond. Med. Gaz.*, Sept. 1836.

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7. *Experimental Investigation into the Glosso-pharyngeal, Pneumogastric, and Spinal accessory Nerves.*—This is the title of a paper read before the Medical Section of the British Association, at their late meeting in Liverpool, by Dr. JOHN REID. This paper embraces the principal results deduced by the author from an extensive series of experiments, performed by himself, upon those complicated and important nerves generally included under the eighth pair.

Glosso-pharyngeal.—The experiments on this nerve were all performed on dogs, and were twenty-seven in number. Seventeen of these were for the purpose of ascertaining if it was to be considered a nerve both of sensation and motion, and what were the effects of its section upon the associated movements of deglutition and on the sense of taste. The other ten were performed on animals immediately after they had been deprived of sensation, with the view of satisfying himself

more thoroughly how far it is to be considered a motor nerve. The most remarkable effect witnessed in these experiments was an extensive convulsive movement of the muscles of the throat and lower part of the face, on irritating this nerve in the living animal, provided the irritation was applied to the trunk of the nerve before it had given off its pharyngeal branches, or was applied to one of the pharyngeal branches separately. These movements were equally well marked when the nerve was cut across at its exit from the cranium and its cranial end irritated, as when the trunk of the nerve and all its branches were entire. The conclusions drawn from a review of the whole experiments were these:—That this is a nerve of common sensation. That mechanical or chemical irritation of this nerve before it has given off its pharyngeal branches, or of any of these branches individually, is followed by extensive muscular movements of the throat and lower part of the face. That the muscular movements thus excited, depend not upon any influence extending downwards, along the branches of this nerve to the muscles moved, but upon a reflex action transmitted through the central organs of the nervous system. That these pharyngeal branches of the glosso-pharyngeal nerve possess endowments connected with the peculiar sensations of the mucous membrane upon which they are distributed, though we cannot pretend to speak positively in what these consist. That this cannot be the sole nerve upon which all these sensations depend, since the perfect division of the trunk on both sides, if care be taken to exclude the pharyngeal branch of the par vagum, which lies in close contact with it, does not interfere with the perfect performance of the *function of deglutition*. That mechanical or chemical irritation of the nerve immediately after an animal has been killed, is not followed by any muscular movements, provided that care be taken to insulate it from the pharyngeal branch of the par vagum; and here, again, an important difference between the movements excited by irritation of the glosso-pharyngeal and those of the motor nerve is observed, for, while movements produced by the irritation of a motor nerve, such as the pharyngeal branch of the par vagum, continue for some time after the functions of the central organs of the nervous system have ceased, those from irritation of the glosso-pharyngeal are arrested as soon as all decided marks of sensation disappear. That the sense of taste is sufficiently acute after the perfect section of the nerve on both sides, to enable the animal readily to recognise bitter substances. That it may probably participate with other nerves in the performance of the function of the sense of taste, but it certainly is not the special nerve of that sense. That the *sense of thirst* does not depend entirely upon this nerve.

Pneumogastric or Par Vagum Nerve.—From the results of thirty experiments upon the par vagum, he is convinced that severe indications of suffering are induced by pinching, cutting, or even stretching this nerve, in almost all those animals operated on. In several experiments, in which the trunk of the par vagum was compressed by the forceps for a few moments, it was observed that in some of these cases powerful respiratory movements were thus produced, and were followed by struggles, yet no tendency to cough, and no act of deglutition which could be fairly attributed to this cause.

Pharyngeal Branches of Par Vagum.—From seventeen experiments performed on dogs, either when alive or immediately after being deprived of sensation, he concludes that these are the motor nerves of the constrictors of the pharynx, the stylo-pharyngeus, and palatine muscles; and that the sensitive filaments of these nerves must be comparatively few, if, under ordinary circumstances, they exist at all. Section of the pharyngeal branch of the par vagum on both sides, was followed by very considerable difficulty of deglutition, in which the food appears to be forced through the passive bag of the pharynx by the powerful movements of the tongue, and of the muscles which move the hyoid bone and larynx.

Laryngeal Branches of the Par Vagum.—On irritating the superior laryngeal nerve by galvanism, or by pinching it with the forceps, when the glottis was exposed to view, no movement of the muscles which dilate or contract the aperture of the glottis is observed. Upon looking at the anterior part of the larynx, upon which the external laryngeal branch of this nerve is chiefly distributed, vigorous contractions of the cricothyroid muscle, by which the cricoid cartilage is approximated to the thyroid, were always seen. On irritating the inferior laryngeal, obvious movements of the muscles which dilate and enlarge the aperture of the glottis followed. In some cases these movements were very vigorous,

and it was observed that these did not produce an enlargement of the glottis, but, on the other hand, the arytenoid cartilages were approximated, so as in some cases to shut completely the aperture of the glottis. It was also distinctly observed, that the only outward movements of the arytenoid cartilages were merely produced by their return to their former position, after they had been carried inwards.

From these experiments it was concluded, that all the muscles which move the arytenoid cartilages receive their motor filaments from the inferior laryngeal or recurrent nerves; and as the force of the muscles which shut the glottis preponderates over that of those which dilate it, so the arytenoid cartilages are carried inwards, when all the filaments of one or both of these nerves are irritated.

These experiments also show us, that one only of the intrinsic muscles of the larynx receives its motor filaments from the superior laryngeal, viz: the crico-thyroid muscle, and that, consequently, the only change which the nerve can produce on the larynx as a motor nerve, is that of approximating the cricoid cartilage to the thyroid; in other words, of shortening the larynx. We shall see how far this view is supported by the subsequent experiments upon the living animal.

The superior laryngeal nerve was cut on both sides in two dogs and one rabbit, and these animals readily swallowed both solids and fluids, without exciting cough or the least difficulty of breathing. The lungs of these animals were carefully examined after death, and none of the food taken could be detected in the air-tubes. In several animals the superior laryngeals were first cut, and the inferior laryngeals immediately afterwards; and it was ascertained that the previous division of the superior laryngeal did not prevent the difficult breathing, and symptoms of suffocation, which not unfrequently follow the division of the inferior laryngeal nerves, especially in young animals.

To procure still more positive assurance of the effect of section of the different laryngeal nerves upon the movements of the glottis, these four nerves were exposed in a full-grown cat, and the larynx was then dissected out, and brought forward, without disturbing the nerves. After watching for a little the vigorous movements of the muscles of the glottis, seen during the struggles, crying, and increased respiratory movements of the animal, the inferior laryngeal were then cut across, and instantly all the movements of the muscles of the glottis ceased, and the arytenoid cartilages assumed the position in which they are found after death. The superior laryngeals were then cut, without effecting the slightest enlargement, or any other change, upon the glottis. As the arytenoid cartilages were now mechanically carried slightly inwards during the rushing of the air through the diminished aperture of the glottis in inspiration, by which this aperture was still farther contracted, its edges were kept apart with the forceps until an opening was made into the trachea to prevent the immediate suffocation of the animal.

The glottis was brought into view upon another cat, as in the preceding experiment, and the motion of the muscles of the glottis were again watched for a short time. The superior laryngeals were then cut, without diminishing in the least any of the movements of the arytenoid cartilages. The sides of the glottis were approximated, as in crying, so as to form but a narrow fissure; and in struggling the aperture became completely closed, in the same manner as when the superior laryngeal nerves were uninjured. It must be at once obvious, that these experiments are completely subversive of the statement that the inferior laryngeal supplies those muscles only which open the glottis, while the superior laryngeal nerves furnish the motor filaments to those muscles which shut the glottis; they also illustrate, in a very satisfactory manner, the cause of the dyspnœa in some cases where the inferior laryngeal nerves are cut or compressed.

Dr. Reid has also satisfied himself, that when any irritation is applied to the mucous membrane of the larynx in the natural state, that this does not excite the contraction of these muscles by acting directly upon them through the mucous membrane, but that this contraction takes place by a reflex action, in the performance of which the superior laryngeal nerve is the sensitive, and the inferior laryngeal is the motor nerve. He has also satisfied himself that the muscular contractions of the œsophagus are not called into action by the ingesta acting directly as an excitant upon the muscular fibre through the mucous membrane, but by a

reflex action, part of the œsophageal filaments acting as sensitive, and others as motor nerves.

Spinal Accessory.—In seven dogs this nerve was cut on one side, without affecting the ordinary voluntary movements of that side of the neck. In several animals a weak dose of prussic acid was given after the nerve had been cut on one side. In several cases this was followed by prolonged, forcible, and regular respiratory movements, after the animal had been deprived of all consciousness and voluntary motion. In three of these cases distinct movements of contraction and relaxation were observed in the exposed sternomastoid muscles, synchronous with the other muscles of respiration. The contractions were perhaps weaker on the side on which the spinal accessory had been cut.—*Ibid.*

PATHOLOGICAL ANATOMY AND GENERAL PATHOLOGY.

8. *Metastasis of the lacteal secretion.*—Drs. E. Graefe and Hirschel report, in *Hufeland and Osann's Journal*, for 1836, two very remarkable cases in which the secretion of milk in the breasts suddenly ceased, followed by tumours at the knees. In both patients fluctuation was soon manifest, and an opening into the tumour gave issue to a large quantity of pure milk.

Prof. Fleischman relates, in the same Journal, the case of a young, healthy country girl, who the sixth day after delivery, suffered from a fright, which was followed by a chill, lassitude, pain in the head, and, after a few hours, loss of milk and violent delirium. Some hours after this, she was attacked with repeated sneezing, and a jet of milk, as large as a straw, was discharged from her right nostril. On this discharge being established the delirium began to diminish, her reason soon returned, she fell into a sound sleep, accompanied with perspiration; her breasts then filled with milk, and her health was re-established.—*Gaz. Med.*, Jan. 7, 1837.

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9. *Vicarious urinary discharge.*—In our first number, (November, 1827,) two very extraordinary cases of vicarious urinary discharge were recorded, one by Dr. Arnold, of Providence; the other by Dr. Senter. In the *Gazette Médicale de Paris* of Sept. 17, 1836, there is an account, by Dr. Lynker, of Pyrmont, extracted from a German journal, (*Wissenchaftliche ann. der gesammte Heilkunde,*) of a case similar in many respects to those to which we have just referred.

The subject of this last case was a woman, 24 years of age, who had menstruated, though with pain, since her 13th year, and had been subject from infancy to cramps, which produced a contraction of her lower limbs. In the summer of 1831, she had a fall on the front of her head, which stunned her for some minutes. For this she was bled by a drunken barber, four pounds, which produced extreme prostration, accompanied with spasms, sometimes tonic, at others clonic. A long time elapsed before she recovered her strength, and there remained a fixed pain in her forehead on the spot struck in her fall. In the autumn of 1833, she again suffered from spasms, which were followed by paralysis of her two extremities, (which two, we are not informed).

Many remedies were fruitlessly resorted to: the patient was attacked with abdominal typhus. The paralysis ultimately was cured by moxas. In consequence of mental emotion, the spasms suddenly returned and with great violence; at this period the phenomena presented themselves which render this case so remarkable.

The patient experienced, periodically, a painful stricture each side of the lumbar vertebræ, along the course of the ureters, sometimes more towards the kidnies, at others nearer to the bladder. Subsequently she complained of a violent heat in the abdomen, which was distended and very sensible to pressure. She had great thirst, sometimes chills, at others flushes of heat, anxiety, sleep disturbed by dreams, pulse small, feeble, irregular; impatience; obstinate constipation. Her condition daily became worse; her abdomen increased in size; vomiting supervened, and finally she discharged from her stomach a quantity of thin, clear, yellowish fluid, of a slightly urinous smell, after which she felt somewhat relieved. From the first appearance of these symptoms the patient had not passed a drop of urine by the ordinary passage,

although she at the time experienced a desire to do so. The bladder was not distended, and a catheter being introduced, a small quantity only of urine, as clear as water, and almost inodorous, was discharged. The spasms were slightly relieved by the administration of antispasmodics, followed by diuretics, warm bath, &c. When this dysuria had continued fifteen days, the condition of the patient remaining the same, some of the symptoms even aggravated, especially the vomiting, the patient complained of a continual pain in the axilla and the two mamma, and these parts evidently increased in size; the lactiferous vessels were tumid; this was followed by pains down the back, frequent chills, &c.; in general all the symptoms of milk fever. After a few days, a great quantity of colourless fluid, and of an urinous odour, was discharged from the mammæ, followed almost instantaneously with relief of all the symptoms. After continuing two days this discharge ceased suddenly, and appeared from the umbilicus; after continuing some hours it again ceased, and appeared anew from the thighs. It continued but a short time from this last place, and did not recur there; but appeared alternately from the mammæ and umbilicus, principally, however, from the former. During this period no urine was passed per viam naturalem, and but a few drops were brought away by the catheter. After this state of things had continued for several days acute pain was experienced in the abdomen, and a tumour suddenly appeared in the region of the bladder, and the patient passed, per urethram, seven pots of turbid urine, and twelve hours afterwards four pots more.

From this moment the patient was relieved from all her painful symptoms.

Subsequently this patient suffered from tænia, and was attacked with various nervous symptoms, and a bloody fluid was discharged alternately from her mammæ and umbilicus, sometimes copiously. This discharge almost always immediately followed or preceded the menstrual flow.

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10. *Fibrous Tumour weighing one hundred and twenty pounds, developed in the Abdomen.*—The subject of this rare case, was a gentleman 58 years of age, of remarkably muscular frame and robust constitution; accustomed to much exercise in walking, and who had always enjoyed excellent health. In 1833, after an attack of hemorrhoids, which were promptly cured by astringents, his abdomen began to enlarge, without, however, producing any greater inconvenience than that arising from its weight. In December, 1835, his abdomen had increased so much as to exceedingly restrict him in his accustomed exercise, and to induce him to apply to Dr. Guillon, the narrator of the case, for relief. This physician believing that he could detect fluctuation in the abdomen, prescribed drastic purgatives, diuretics, &c., and these affording no relief, punctured the abdomen, but no fluid flowed through the canula. There was no inflammation of the integuments, and the internal functions were all regularly performed, but various physicians, who examined the case, concurring in the belief that fluctuation in the abdomen was manifest, tapping was again resorted to, and several times repeated, but without any fluid being obtained through the catheter. The abdomen continued to enlarge until the patient could not support any other posture than with his elbows on a table, or lying on his right side. The appetite, which to this period was good, began to diminish; swallowing food produced dangerous strangulation; the lower limbs and scrotum became infiltrated, and after several days constipation he died suddenly asphyxied, the 23d of November, 1836.

Autopsy.—The *abdomen* measured six feet five inches from the hypochondrium to the pubis; three feet four inches from the xyphoid cartilage to the same point; and five feet *two* inches around the body. *Fluctuation still very sensible.* The abdomen being opened, showed an enormous tumour occupying its whole cavity. This tumour closely adhered to the right side of the abdomen. It consisted of two portions, one superior and larger, the other inferior, thicker, and separated by a space, in which were lodged the mesenteric vessels. Both were fixed in front of the spinal column, extending from the space between the pillars of the diaphragm as far as the scrotum. The superior portion was divided by a deep furrow into two unequal lobes; it rested below on the second portion by a thin edge, whilst its superior border, which was thicker, was in contact with the liver and diaphragm, which it pressed upwards without adhering to them. Its form was irregularly rounded; its circumference five feet one inch; its greatest diameter nineteen

inches, and its smallest seventeen. On the left of and behind this portion, were the stomach, the spleen, and small intestines; the kidneys were under this mass; all these organs appeared healthy. The pancreas was redder than usual. The lumbar muscles were covered with large ecchymoses.

The inferior portion occupied the pelvis, and reposed on the iliac vessels, on the venæ cavæ which were gorged with blood, and on the sigmoid flexure of the colon which it compressed; it had not, however, any close adhesions with any of these parts. This portion of the tumour is thicker and more rounded than the other; its tissue firmer, and its surface more nodulated. Its circumference was four feet; its thickness seven and a half inches; its greatest diameter fifteen inches.

The cæcum, which appeared much dilated, occupied the interval between the two tumours; a portion of the right lumbar colon is lodged in the fissure in the upper tumour, and the left lumbar colon adhered to the lower tumour.

The epiploons had disappeared, and the whole of the peritoneum seemed to have been used to cover this abnormal production, on the surface of which it formed a smooth membrane, and the developement and lobulated form of which seemed also to have been determined by the attachments of this serous envelope.

The tumour of the scrotum was not at all adherent to those of the abdomen; it could, by taxis, be partly pushed through the ring which was much dilated, into the abdomen. It was flattened anteriorly and posteriorly; its lower portion was thinnest; its upper adhered to the aponeurotic expansions which covered the internal orifice of the inguinal canal; its internal border was straight and united to the spermatic cord. It was surrounded by several ganglions, which were hypertrophied and variously degenerated; some of them ossified.

These tumours were of a *gelatinous consistence*, and to the feel were like the medusæ. It might be supposed, from the sensation they presented to the touch, that they contained hydatids. On incising them, the tissue was found to be homogeneous, and evidently of a fibrous nature. The lower tumour was the firmest, and some portion of it was almost cartilaginous.—*La Presse Méd.*, 5 April, 1837.

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11. *Dorsal Point.*—M. Cruveilhier has observed what has probably been noticed by most practitioners, that affections of the stomach, heart, liver and lungs, frequently coincide with pain in a fixed point of the vertebral column, varying according to the organ diseased. He calls this painful spot the *dorsal point.* Painful diseases of the viscera are, it is well known, very often accompanied with pains in a determinate point of the vertebral column. Every observer must have seen cramps of the stomach, when arrived at their height, give way to a pain more or less acute, about the fourth dorsal vertebra; and in some cases, the patients complain more of this pain than of the cramp of the stomach. This is observable not only in cramp, but also in ulceration and cancer of this organ. In hepatic colic, the dorsal point exists also about the eighth and ninth dorsal vertebra. In all pains of the heart, whether nervous or sympathetic, of an organic lesion, whenever they attain a very great height, the dorsal point at the fourth or fifth vertebra, accompanies the pain of the organ, and distracts the patient more than the latter. In diseases of the womb, the pain occurs at the second or third lumbar vertebra; and in the sacral region, in diseases of the neck of the uterus. Cruveilhier has found that greater relief is experienced by applying the remedies to the dorsal point than to other parts; thus, for example, patients affected with cancer of the uterus, receive greater relief from blisters, leeches, and cauteries, to the dorsal point, than to the hypogastrium. A woman affected with disease of the heart was entered as incurable at the Salpetriere; she was incapable of moving; she was obliged to lie in bed; she felt oppression, suffocation, and pain, occupying all the region of the sternum. Cruveilhier, after employing every possible treatment, digitalis, leeches, blisters, &c., for several months, thought of the dorsal point. The pain was circumscribed to two dorsal vertebræ. Cruveilhier applied the cautery to this point, and the pain was speedily removed; the oppression and suffocation disappeared; it is a year since she left the hospital and is considered as cured. Cruveilhier admits that he got the first idea of this treatment from an English memoir, in which it was proposed to apply therapeutical remedies to the vertebral column, in preference to other places. It was also suggested to him, by his researches on the nervous system, from which it results that the visceral or ganglionic nerves are not independent, but have their roots in the spinal

marrow; he conceives that by acting on the spinal marrow the organs will be influenced.—*Gazette des Hôpitaux*, July 8, 1837.

12. *Lecture on Auscultation of the Chest.* By M. Louis.—Many of you, gentlemen, have wished me to dedicate one of these conferences to the study of the auscultation of the chest. Although the facts which I shall have to set before you will be far from being all new; although a considerable part of them have been most accurately described by one of the great medical luminaries of our era, the celebrated author of the "Treatise on Auscultation;" and although you have already seen them singly in the cases which I have from time to time shown you in this clinical course, I still think that it will not be useless to combine these scattered elements, and to rise into those general reflections which are the natural consequence of their union. I yield the more readily to your wishes, because no one is more impressed than myself with the importance of auscultation, as a means of diagnosis in the diseases in which it can be employed, and because I am convinced that we cannot be too zealous in making a knowledge of it familiar, even by repeating what has been said often and often before. I shall merely give a summary view of the facts which have become, so to say, common-place in this science, and I shall insist more upon those which, though less known, are not less important, for they are the results of accurate observation in a very considerable number of individual cases.

Auscultation is the exploration of the sounds which are produced in different parts of the body, whether healthy or diseased. As I wish to confine myself to one lecture, I shall speak only of the auscultation of the respiratory organs; and, as a preliminary, I will mention the precautions which must be taken in order that auscultation may be practised with accuracy, and that inferences may be drawn from its results without risk of error.

The person to be examined should lie on his back, or sit, according as we wish to auscult the anterior or the posterior part of the chest; he must lean neither to the right nor the left; his shoulders must be in the same plane, and his symmetrical muscles in the same state of relaxation or tension as the position of the patient.

The contraction, tension, and relaxation of the muscles, have a marked influence on the results of auscultation, and when the corresponding points of the thorax are examined in comparison with each other, as we must always do if we want to draw rigorous inferences, we might imagine differences that did not exist, merely from the bad attitude of the patient.

The auscultator, too, must select a convenient position, as Laennec recommends, and take care that the respiratory sounds are not intercepted by thick clothes, and particularly that the patient does not retain any which might produce a fallacious sound, as, for instance, silk coverings. He must also find out which is his best ear, as experience shows that almost every observer has one ear finer than the other. All these precautions, which at first sight may seem over-punctilious, are absolutely necessary to prevent our falling into gross errors.

In opposition to Laennec, it is now allowed that the naked ear perceives sounds as well as when aided by the stethoscope; and, indeed, it often happens that it distinguishes shades of sound which had escaped it when assisted by this instrument. The cases in which we ought to prefer mediate auscultation are very rare, and it is often necessary to have recourse to immediate auscultation to determine with clearness what would otherwise be obscure.

The patient and the observer being properly placed, auscultation, to be successfully practised, requires another condition, namely, the ear, if unaided, is to be exactly applied to the chest; if the stethoscope is used, the whole of its circumference is to be applied to the parietes of the thorax, so that if the patient is so wasted that the intercostal spaces leaves a cavity under the stethoscope, it must be filled up by compresses placed upon the thorax.

All these preliminaries being observed, auscultation requires nothing but a certain degree of attention; and as it is impossible to know what is pathological, without first knowing what is normal, I will briefly state the sounds which belong to the healthy state.

§ I. Healthy State. *Normal Respiration.*—In a healthy person, we hear during inspiration a soft and gentle murmur, which is especially distinct towards the anterior and lateral parts, as well as the lower two-thirds of the pos-

terior part of the thorax. The respiration approaches the bellows' sound in the space between the vertebral edge of the scapula, and the dorsal spine, at the level of the origin of the bronchi; and this blowing respiration, which exists also, though in a less degree, towards the sub-spinal fossæ, is more marked on the right than on the left; a circumstance worth remarking, as, if one was not forewarned of it, one might mistake the healthy for a diseased state. This difference is accounted for by the calibre of the bronchi, which is greater on the right than the left side, as appears from the researches of Dr. Gerhard, of Philadelphia.

These phenomena take place during inspiration only; for, at the moment that expiration begins, the respiratory murmur ceases to be heard, or nearly so, excepting in the upper and posterior third, where a sound similar to that of inspiration, at the same points, but weaker, may still be heard. These sounds vary in force according to age, *embonpoint*, and the strength of respiration; but in these different circumstances their essential characters are not sensibly changed.

Resonance of the voice.—If a healthy man speaks while we are examining his chest by auscultation, we perceive a resonance, a sort of general tremor, which is at its maximum behind, and at the junction of the middle and the upper third of the chest; that is to say, at the same point where the slight blowing respiration is heard. These two effects are owing to the same cause, and this slight bronchophony is rather stronger at the right than at the left apex, for the reason stated above; so that when this difference is inconsiderable, and not accompanied by any remarkable modification of respiration, we cannot infer from it the existence of any morbid state.

§ II. Pathological State. The alterations produced by disease in the different sounds which I have just described, are numerous and varied. Let us examine them with care, and let us see what is the degree of their importance relatively to diagnosis, and whether, if properly studied alone, these alterations are capable of distinguishing the different diseases of the chest from one another. Let us first study the alterations of the respiratory sound, independently of the rhonchi (*râles*) which are combined with them.

1. *Modification of the respiratory sound.*—The most simple of these modifications is obviously the weakening of the respiratory murmur; it is found in the emphysema arising from dilatation of the pulmonary vesicles. This weakening, which is generally proportioned to the duration of the disease, is at its maximum anteriorly, where the emphysema is usually the greatest; it is also permanent. If it is general, and not considerable, we may be uncertain as to its real cause, for the strength of the respiratory murmur varies in a state of health: but if the diminution is limited in extent, and constantly observed; if it is on one side of the thorax only, or if it differs in degree at corresponding points, it is obviously pathological, and very probably depends on a greater or less dilatation of the pulmonary vesicles. It is true that the diminution of the respiratory sound takes place in other diseases, in pleurisy, in phthisis, and in pulmonary catarrh; but then it is developed in particular conditions which allow us to recognise its real cause, or at least strongly suspect it.

In pleurisy, indeed, when the effusion is not very considerable, we can hear the respiratory murmur through the effusion, but much less clearly than in the healthy state, or than at the corresponding point of the other side; and then, moreover, this diminished respiratory sound is deeply situated, and has the softness of the normal state. It is particularly below and behind that it is found, while in emphysema the maximum of diminution of the respiratory sound takes place anteriorly. This latter sound, too, is superficial; it becomes dry, and loses its regular softness. Although in phthisis the diminution of the respiratory murmur is generally found at the beginning of the disease, it is at the apex of the chest where the developement of tubercles begins. When this diminution takes place in pulmonary catarrh, it is not permanent; and as it depends on the obstruction of the bronchi by mucus, it is merely requisite to make the patient cough, to remove the obstacle which hindered the free passage of the air, and thus restore the natural intensity of the respiratory murmur.

Hence the diminution of the respiratory sound, when properly studied, can lead us, independently of a rhonchus, of percussion, or of the inspection of the thorax, to a diagnosis of several affections of the lungs; and if this diagnosis is

not absolutely infallible, at any rate it is such as to establish the strongest presumption in favour of the existence of such or such an affection. To sum up, the diminution of the respiratory murmur derives all its value from its situation, its permanence, its degree of distance from the ear, or nearness to it, its dryness or softness. Thus:—

First, in emphysema this diminution continues in the same point, is usually at its maximum anteriorly, and is accompanied by a certain roughness, which does not exist in the healthy state.

Secondly, in pleurisy it occurs at the inferior and posterior part; the respiratory sound is deeply situated, and preserves its softness.

Thirdly, in phthisis the diminution takes place at the apex.

Fourthly, in pulmonary catarrh its situation is variable, and its duration momentary.

A similar circumstance occurs in these various affections: in the first three a certain number of pulmonary vesicles no longer admit the air, in consequence of the compression which they suffer; in the last, in consequence of the presence of mucus in the bronchi.

2. *Absence of the respiratory sound.*—The respiratory sound may be completely wanting, and this over a variable space. This occurs when a tumour compresses the great bronchi, as in some cases of aneurism; or when there is a slight effusion of air or water, as in pneumo-thorax, or many cases of pleurisy.

In the last two cases, auscultation, independently of other means of examination, cannot fix the diagnosis of the disease which suppresses respiration. It is not so in the first, if the respiratory sound is wanting only on the surface of the lung, as effusions of air and water are not limited to this part of the pleura.

Having considered the diminution and absence of the respiratory sound, let us examine its morbid changes.

3. *Alteration of the respiratory sound.—a.* The most remarkable for its strength is amphoric resonance, or amphoric respiration, which arises from the air entering a large cavity through a narrow opening. When it exists, we are certain to find either a considerable excavation in the substance of the lungs, consequent on the breaking down of tuberculous matter (and then its seat is always at the apex of the lung), or a cavity arising either from a defined gangrene, or from a large bronchial dilatation, in which case its seat is variable. Thus it is the place alone where amphoric respiration is found which could serve to fix the diagnosis, if we did not know the other symptoms and the progress of the disease; for in all these cases the modification of the respiratory sound is precisely the same. But the laws of pathology are so unchangeable, that even if we had nothing to assist us but the knowledge of the seat of the lesion, the diagnosis would be almost certain.

b. When less considerable, the alteration we have been treating of is called bronchial respiration; it is a sound like that which is heard when the ear is applied to the trachea. Bronchial respiration occurs whenever the air passes through the bronchial tubes without reaching the pulmonary cells. In those cases where the substance of the lung is disorganized, and approximates to a completely solid tissue, it is—

First—One of the most certain signs of the red and grey hepatization of the lungs, being the alterations which constitute the second and third stage of pneumonia; they occur almost always posteriorly, and more frequently at the base than the apex.

Secondly—It also occurs in pleurisy, when it is less distinct, and somewhat smothered; it is then sometimes capable of being displaced by the effusion,—a phenomenon which does not take place in any other affection.

Thirdly—In the dilatation of the bronchi, it is remarkable for constantly remaining in the spot opposite to the lesion, whatever may be its seat.

Fourthly—Tubercles, when they have arrived at a certain stage, are manifested by bronchial respiration under the clavicle, and in the supra-spinal and sub-spinal fossæ. We must beware, however, of confounding natural and bronchial respiration, as they have some resemblance; it requires a practised ear not to be deceived in a host of cases where the characteristic of which we are speaking is not prominent, and is consequently doubtful. It is by alternately and carefully examining the corresponding points of both sides, that we shall succeed in discriminating the difference, not forgetting that there is a slight difference in the

healthy state, respiration being always stronger and more dry on the right side, and consequently approximating a little more to the bronchial *souffle*. This excess of sound appears still greater when the two sides are compared; so that the physician who was not aware of this would obviously be liable to serious mistakes.

In all the affections in which bronchial respiration is met with, there is a great similarity in the organic lesion. The substance of the lungs is condensed by inflammation in pneumonia, by compression in pleurisy; it is more or less indurated around dilated bronchi; when there are tubercles, the pulmonary vesicles are replaced by the new formation.

c. Prolonged and blowing expiration is a change in the respiratory sound allied to bronchial respiration. In order to estimate it at its just value, we must recollect that this part of respiration, which in most persons is performed without any sound, may be accompanied by a slight murmur without any disease, provided that it is equal in the corresponding points of both sides. At the same time that the expiration is prolonged, the inspiration loses its softness and marrowiness, becoming less strong, but more rough. If these two phenomena are observed under the clavicles, they are sufficient of themselves to make us admit the presence of tubercles; and this characteristic sign is the more valuable, as it is generally met with before phthisis is far advanced.

d. Between bronchial respiration and amphoric resonance there is an intermediate modification, namely, cavernous respiration, of which the name alone points out the kind of lesion on which it depends.

To produce cavernous respiration, the lung must contain a large excavation, communicating by one or more bronchi with the external air. But excavations of this kind may be produced in four different ways:—

1st. By the breaking down of tubercles. In this case, cavernous respiration is found at the apex of the chest, and its situation is enough to indicate the lesion on which it depends.

2nd. When, in the progress of pneumonia, abscesses are formed, (a rare event, however,) it is cavernous respiration which points out their existence as soon as they communicate with the external atmosphere. In such cases the alteration of the respiratory sound is found most frequently at the base of the lungs.

3d. The excavation may arise from a partial gangrene, of which the matter becomes liquid and is evacuated externally by one or more bronchi in communication with the collection of pus.

4th. It may be the effect of a very large bronchial dilatation. In these last two cases the situation no longer assists the diagnosis, for gangrene and dilatation of the bronchi may appear in very different parts.

To these morbid changes in respiration are allied other phenomena of auscultation produced by the resonance of the voice.

Modifications of the resonance of the voice. *a. Bronchophony.*—The most remarkable of these changes is the one which accompanies bronchial respiration, and is called bronchophony. These two sounds are necessarily associated, and whenever one is heard we are sure to find the other. They are met with:—

First, in the first and second stages of pneumonia. In this case, the bronchophony is constant, continues for a very considerable time, and varies in extent and intensity, according to the progress of the disease.

Secondly, in dilatation of the bronchi. In this affection it is not always of the same loudness; this arises from the greater or less thickness of the indurated tissue around the dilated tubes.

Thirdly, in tuberculous subjects, bronchophony is heard at the apex, and, posteriorly, in the supra-spinal and sub-spinal fossæ, and under the clavicles. The remark we made on bronchial respiration holds good here: the farther we go, the more we must be convinced that auscultatory signs derive their chief value from the place where they are discovered; for the same sign belongs to several different affections, the seats of which are different also.

Fourthly, in pleurisy, bronchophony manifests itself at the inferior and posterior part of the chest. This would not be sufficient to distinguish it from the bronchophony produced by pneumonia, were it not for another characteristic sign, namely, the possibility of altering the place when the sound is heard, by altering the situation of the effused fluid; but this is not necessary to make the

diagnosis certain, when bronchophony undergoes the particular modification which is called ægophony. It may be admitted as a general rule, that ægophony (which is variable in intensity, and often difficult to find) is a pathognomonic sign of pleuritic effusion; and to produce it, the effusion must reach but not overpass certain limits, the extent of which is not known.

This situation inferiorly, and the facility of displacement, though generally signs of pleurisy, do not form a rule without an exception. To convince you of this, it will be sufficient to tell you that Laennec once saw a case of numerous adhesions separating several effusions from each other, which formed so many partial pleurisies. It is evident that in cases like this the effusion may be suspended, so to say, at different heights, and that it cannot be displaced.

Another difficulty now and then occurs. In some patients the pleuritic pain is but slight, and the resonance of the affected side differs but little from that of the opposite one: ægophony is difficult to ascertain, and the only appreciable alteration consists in a slight diminution of the respiratory sound. In such cases is there effusion? If there is, the quantity of fluid must be very small.

Though there is no doubt as to the way in which bronchophony is produced (for there the sound, after reaching the greater bronchi, is transmitted to the ear by a tissue which has become completely solid), it is not the same with ægophony, which is not easily explained. Laennec attributed it in great measure to a certain degree of flattening, which he supposed the bronchi to sustain from their compression by the fluid. Among the number of the arguments which he has himself given against this theory, he has forgotten one, namely, that when strong and thick adhesions have taken the place of the fluid, this flattening ought to occur and produce ægophony, which is not the case. In short, we must conclude that ægophony has the most striking resemblance to bronchophony, from which it differs only by one peculiarity, viz. *bleating*.

b. When still louder, the resonance of the voice is called pectoriloquy, which resembles the sound that would be produced if the patient spoke directly into the ear of the observer. It is indispensable for its existence that there should be a very considerable cavity communicating with the bronchi. It occurs—

First, in phthisis, when the cavities have acquired a certain size, and are surrounded by an indurated tissue;

Secondly, in gangrene, when the parietes have acquired a sufficiently great density;

Thirdly, in abscess of the lungs;

Fourthly, in dilatation of the bronchi, when it is sufficiently great.

The existence of pectoriloquy being once ascertained, its situation will assist in pointing out, if not with certainty, at least with probability, the kind of lesion on which it depends. If it is at the apex of the lung, there is a strong probability in favour of a tubercular excavation; if it is at the lower part, a dilatation of the bronchi may be suspected. The other two lesions which may give rise to pectoriloquy have no fixed seat.

It may happen that no pectoriloquy can be heard, though the existence of a considerable excavation is certain: this happens when the communication of the cavity with the exterior is cut off by the compression of the corresponding bronchi, or the obstruction of these tubes by substances proceeding from the excavations; in this case auscultation loses the greatest part of its advantages.

THE RHONCHI. The auscultatory signs which we have successively considered are nothing more than morbid changes of the respiratory sound. Let us now examine another series of phenomena, which are not less important, and which cannot be considered as deviations from the normal state of respiration. This series consists of the rhonchi, which are divided into two kinds, the dry and the moist.

1. *Dry rhonchi.*—These may be reduced to two chief ones, the sibilous and the sonorous rhonchus.

a. The sibilous rhoncus resembles a slight and prolonged whistle, either grave or acute, dull or clear; it occurs—

First, almost always in emphysema, and sometimes from one extremity of the chest to the other; it is capable of masking the respiratory sound.

Secondly, in pulmonary catarrh it is generally limited in extent, and attacks different points successively, which is not the case in emphysema.

Thirdly, in typhoid affections it occurs in three-fifths of the cases; generally about the eighth day, and over the whole chest.

Some practitioners have considered it, in such cases, a symptom of inflammation of the bronchi; but the readiness with which it changes its place does not allow of this supposition: there is no doubt that it depends on the presence of a small quantity of fluid, which easily changes its place.

b. The sonorous rhonchus is a grave sound, and sometimes extremely loud; at one time resembling snoring, at another the sound of a bass-string, and, very frequently, it is like the cooing of a turtle-dove. It is very commonly found at the commencement of pulmonary catarrh. Laennec supposes it to proceed from the swelling of the bronchial mucous membrane, especially at the prominence produced by the division of the bronchi; but he does not give any case in confirmation of this theory, nor does he tell us how he ascertained the existence of this lesion.

2. *Moist rhonchi.*—These are more frequent than the preceding ones, are of greater importance, and in a great number of cases are sufficient to fix the diagnosis.

Mucous rhonchus.—This has been compared to the sound of air blown through a tolerably dense fluid, such as soap-and-water, or sometimes a thicker liquid.

It is one of the signs—

First, of pulmonary catarrh; it then exists on both sides, and progressively descends.

Secondly, of phthisis, when the tubercles become soft; it then occurs at the apex of the lungs, under the clavicles.

Thirdly, of gangrene.

Fourthly, of dilatation of the bronchi.

Fifthly, of abscess of the lung.

It is generally circumscribed, and confined to one side, when alone, therefore, it cannot form a pathognomonic sign.

The mucous rhonchus has several varieties in relation to the size of its bubbles, which vary from the smallest to the greatest.

The crepitous rhonchus has been accurately compared to the sound produced by salt thrown on burning coals, or by dry parchment rubbed between the fingers. It exists in one disease only, namely, pneumonia: it is the pathognomonic sign of its first stage, or pulmonary *engouement*. It is small, equal, clear, and most usually without respiratory murmur. As long as it is not very extensive, it is unaccompanied by bronchial respiration. Is it always met with, as Laennec says? On this point the author of the Treatise on Auscultation contradicts himself; for he says, in one passage, that this rhonchus is only heard at a small distance from the ear; yet afterwards, when speaking of pneumonia, he adds, that an inflamed nucleus in the centre of the lung, were it no bigger than an almond, would be discovered by producing the crepitous rhonchus. It is acknowledged, however, that in such a case the crepitous rhonchus is not heard: this has been proved by MM. Chomel and Andral. One remark to be made upon this rhonchus is, that it is heard over the whole chest of some healthy persons, at the instant of a first forcible inspiration, after which it disappears. In this case is it owing to the presence of a certain quantity of fluid in the pulmonary cells, or rather to the unfolding of their parietes? The latter supposition ought to be adopted, when we consider that this operation is identical with that which occurs in the infant at the moment that the air enters the lungs for the first time.

Can this rhonchus be confounded with the sub-crepitous rhonchus? Undoubtedly not; for the crepitous rhonchus is finer, clearer, more dry, and always uniform. The sub-crepitous rhonchus is coarser and more moist, and the size of its bubbles is very variable. This distinction is of very great importance. Practitioners, from confounding the two rhonchi, have thought that they had to do with a pneumonia when it was only a pulmonary catarrh, and may also have thought that it was their treatment which prevented it from passing from the first to the second stage.

The *sub-crepitous rhonchus* occurs especially:—First, in the pulmonary catarrh, when it is acute and intense; its regular situation is the posterior and inferior part of the chest, on both sides at once; it sometimes extends to the upper part,

but always begins below. It varies according to the stage of the catarrh, and but rarely masks the respiratory murmur.

Laennec admits its existence in emphysema, and makes it the chief sign of that disease; but this is a mistake. In emphysema this rhonchus is identical with that of pulmonary catarrh; it occurs in the same points—that is to say, posteriorly, inferiorly, and on both sides; but if it depended on the emphysema, it ought to occur in front, where the emphysema has its seat, which is never the case.

Secondly, Laennec admits of its existence in pulmonary œdema. To allow of this, it would be necessary that the serous fluid in the cellular tissue of the lung should transude through the bronchi; but this is not so.

Thirdly; if the sub-crepitous rhonchus is heard on one side only, posteriorly and inferiorly, it either indicates tubercles, or, more rarely, a dilatation of the bronchi.

This law is without exception; at least for the last four or five years, in five or six hundred simple pulmonary catarrhs which have fallen under our observation, the sub-crepitous rhonchus has always existed on both sides at once.

Fourthly, it is often heard at the upper part of the chest, and is then sufficient of itself, if not to make us affirm positively that there are tubercles, at least to make us strongly suspect it.

You have seen, gentlemen, the application of this rule within these few days, in the case of a patient labouring under chronic peritonitis, and in whom the sub-crepitous rhonchus existed only at the upper part of the chest. This sign confirmed the idea that I had formed of the tubercular nature of the peritonitis.

I should tell you, moreover, that I have never met with a chronic peritonitis that was not tubercular.

Having now gone through the rhonchi, I must explain another auscultatory sign, the *metallic tinkling*, which consists of a clear and silvery sound, exactly like that produced by a pin or a metallic point in a silver cup.

It occurs in two cases:—

First, when there is a large tubercular excavation, and

Secondly, in perforation of the pleura. Hence the necessary condition for its developement is the existence of a considerable cavity containing a little fluid, surmounted by a certain quantity of air.

The explanation given by Laennec, who compares it to the sound produced by a drop of fluid falling upon the surface of the effusion, has lately been combated by M. Beau. This physician considers it produced by a bubble of air, which, having traversed the fluid, bursts upon its surface.

M. Beau founds his opinion on the fact of his never having witnessed metallic tinkling when the communication with the external air was above the level of the fluid.

Lastly, I will not finish this lecture without examining with you an auscultatory sign of great importance—the *sound of rubbing*. It requires great attention to distinguish it from a similar sound arising from the clothes of the patient or the observer.

First, Laennec has pointed out this sound as being a characteristic of interlobular emphysema.

Secondly, it is one of the first signs of pleurisy, but it is difficult to ascertain it, on account of the rapidity with which effusion is produced. It is frequently met with at the end of the disease, when the effusion is completely absorbed and false membranes alone remain.

Thirdly, in some patients who have suffered from pneumonia, and who are nearly cured, a well-marked crepitation can be perceived for a long time; and this, when combined with a certain dulness in the sound, might deceive one, and make one believe in the existence of a continued engorgement of the lung, which it is not easy to suppose. Is it not more probable that this sound is owing to the friction of false membranes incompletely organized? This interpretation is supported by the anatomy of these false membranes, which are often found to have a reticulated appearance. Would not these uneven surfaces produce the continued crackling, by rubbing against one another? It is a difficult question; but this seems to me the probable solution.—*London Med. Gaz.* from *La Presse Médicale*, July 1 and 5, 1837.

13. *Discharge of a Beetle from the Urinary Bladder.*—A robust man, æt. 23, who had never been ill except just previously of fever, was attacked suddenly by symptoms of the most acute inflammation of the urinary bladder, with intense desire to make water, pains in the perineum, and discharge of mucous flocculent and bloody urine. He was treated by leeches to the perineum, anodyne local applications, and copious demulcent drinks, but without the least relief. After suffering intensely for five days, he found himself unable to pass his water, and this evidently from some mechanical obstruction in the urethra. To relieve this, Dr. Erismann was sent for; but before a catheter could be introduced, the patient discharged a body, of the size of a pea, covered by purulent matter; it was followed by the escape of a considerable quantity of urine, mixed with pus, and immediate relief of all his symptoms. On closely examining the discharged body, it was found to contain a little beetle (*Ptinus fur.* Linn.), which died directly on its exposure to the atmosphere. The patient recovered in three days.

The author quotes several cases of a similar kind, in which worms, larvæ, insects, and one from Schrader, where living slugs were discharged from the bladder, and speculates at great length and with much ingenuity on their origin.—*Lond. Med. Gaz.* from *Schweisz. Zeitschrift*, Vol. II. Part 1.

MATERIA MEDICA AND GENERAL THERAPEUTICS.

14. *On the action of Narcotics.* By G. G. Sigmond, M. D.—(Extracted from his lectures on Materia Medica, delivered at the Windmill street School of Medicine.) Narcotics are distinguished from all other medicines by the specific action which they exercise upon the cerebro-spinal system, but more especially upon the brain, to which, quickly after they are taken into any part of the system, they are conveyed by the blood-vessels. They closely assimilate in their general action, according to the nature of each individual substance and the quantity which may be applied, though considerable differences occur in their individual capacity. Although in their greatest state of intensity, the result of their action is so instantaneous that the progress is scarcely to be watched, in their general operation we observe three stages consecutive to each other; first, an acceleration of arterial blood to the brain; secondly, a venous retardation there; thirdly, an engorgement of the circulatory system in that organ; the first stage being marked by the increased energy of the functions, corporeal and intellectual; the second stage exhibiting their disordered state; and the last stage their temporary suspension.

A familiar illustration of these three consequences may be observed in the state of intoxication from a diffusible stimulus, alcohol, which is classed, from its ultimate effects, under the narcotics. During the arterial acceleration produced by alcohol in its various forms, there is an elevation of the faculties and the corporeal powers; this is differently exhibited, and is much dependent upon the source from which the spirit is obtained, and the state in which it is combined. But the ordinary results are—a glow of heat, an increase of the capillary circulation, the cutaneous perspiration more abundant, the respiration performed with ease; the pulse is, consequently, increased in strength and frequency, the animal heat is elevated, the eyes become more than usually expressive, the countenance is lively; as the stimulus is increased, so are the phenomena of excitement; the circulation acquires a febrile rhythm, the functions are exercised with an inordinate energy, the mind keeps pace with the body; mirth, and joy, and gaiety, are awakened, the wit is lively, and the intellect improved; but to this succeed a general languor and sluggishness, nausea, sickness, vomiting, an obscurity or haziness of vision, incoherence of speech, unwonted muscular motion, muscular debility, and incapability of exercising volition; the vision becomes double; vertigo, internal anxiety, and depression of spirits; in the third stage, a peculiar state between stupor and sleep, which has been called somnolence, occurs. This is the train of phenomena which mark the diffusible action, and the depressing re-action, of narcotics. Great is the rapidity with which many of these agents are taken into the system; an example of this occurs in æther: when a small quantity is given, in a few minutes it finds its way into the circulation; it acts upon the nervous system al-

most immediately, and as a proof of the quickness with which it enters into the circulatory system, it is almost instantaneously given forth by the expiration from the lungs, and the whole room is pervaded by its characteristic odour.

In the action of narcotic agents, you must remember, that such substances pass not only from the stomach and intestines with an inconceivable rapidity, but that the lining membrane of the lungs and that of the skin, when the epidermis is removed, possess the power of imbibition in a very high degree. When directly introduced into the blood, as in injection into the veins, they act most rapidly. The doctrine that it is by the lymphatics that they are absorbed into the system, and carried to the thoracic duct, has been overthrown by Magendie; and he has satisfactorily shown that the blood-vessels, both arterial and venous, dead or living, great or small, possess the peculiar power of imbibition, which likewise takes place upon every tissue and upon every surface; that a strongly poisonous fluid kills, no matter whether it be placed in the mouth, on the mucous or serous surfaces, or on the denuded skin, and that the rapidity of the imbibition depends upon the quickness of circulation, and also upon the fulness or emptiness of the blood-vessels, upon which circumstances the acceleration or retardation of a narcotic substance depends; the rapidity of imbibition almost surpasses belief.

Magendie relates the case of a curé, who was poisoned almost immediately by the introduction of a morsel of strychnine into a seton. An instance of the rapidity with which alcohol is carried by the blood-vessels to the brain occurred in the Westminster Hospital. A man was taken in dead, who had just drunk a quart of gin for a wager. The evidence of death being quite conclusive, he was immediately examined; and within the lateral ventricles of the brain was found a considerable quantity of a limpid fluid, distinctly impregnated with gin, both to the sense of smell and taste, and even to the test of inflammability.

Narcotics have been distributed into sedatives, or substances which have the power of diminishing action, either local or general; into anodynes, which alleviate the pain and sufferings of organs, or of the various tissues of the body; and lastly, into soporifics, or those which produce sleep. The first diminish sensibility, the second communicate ease to the nervous system, and the third give repose to the organs of the body.

From the action they exercise over the cerebro-spinal system, it follows that narcotics influence very considerably all the functions of organs, and new and inordinate actions, or derangements of digestion, of nutrition, and of secretion, follow. Thus they impede the digestive organs, and prevent the sensation of hunger; hence the use of opium by those who are incapable of purchasing sufficient food. Sometimes they obstruct chymnification going forward; if taken during a meal the aliment is sometimes rejected, without having undergone the usual change. Some of them produce constipation, and the large intestines become sluggish, and incapable of obeying the usual stimulus; they lose their habitual power of contraction, and the largest doses of active medicines which should stimulate them to expel their contents are unavailing. Dryness of the mouth, of the throat, thirst, which seem to depend upon the loss of power of the mucous membrane, the muscular tissue is deprived of its general sensibility, the cutaneous perspiration is impeded, and the intellectual powers become impaired.

The following enter into the list of narcotics, and from them different preparations are obtained:—Papaver somniferum, hyoscyamus niger, conium maculatum, atropa belladona, datura stramonium, Nicotiana tabacum, digitalis purpurea, laurus camphora, prunus lauro cerasus, strychnos nux vomica, Humulus lupulus, aconitum napellus, alcohol, æther, white poppy; henbane; hemlock; deadly night shade; thorn-apple; tobacco; fox-glove; camphor laurel; cherry-tree laurel; vomic nut; hop; aconite.

Besides these, there are many substances which will incidentally be the subject of examination; but each of those I have just mentioned to you will be separately enquired into. There are, likewise, different operations on the system, such as general and local blood-letting, application of cold, and such auxiliaries as may be commonly employed in depressing the powers of life, when in a state of high excitement, that may properly be here introduced. Chemistry has, with great certainty, pointed out to us, by a series of inductive experiments, that the greater number of the vegetable narcotics owe their power to an alkaloid, which is united in their natural state to an acid, most probably proper to each plant, and that these alkaloids are infinitely more intense and energetic in their action than any

part of the narcotic in its ordinary state. The great advantage resulting to medicine from this important discovery has been the power that we possess of administering, in very minute quantities, the important means of cure. This, of course, is of very great utility in some instances. It will be for us to weigh, in each case, the advantages and the disadvantages attendant upon their employment. The processes for the obtaining these alkaloids are some of them so complex, that these substances are not likely to find their way into general practice; still we must collect all the information upon them that has as yet been given.

Of all the different classes of medicine we possess, we may fairly consider the narcotics, skilfully, judiciously, and watchfully administered, the most important; and here let me quote the words of the greatest physician this country ever saw, Sydenham. Speaking of the use of laudanum in dysentery, he says, "And here I cannot help mentioning, with gratitude, the goodness of the Supreme Being, who has supplied mankind with opiates for their relief, no other remedy being equally powerful to overcome a great number of diseases, or to eradicate them effectually. This medicine," he continues, "is so necessary an instrument in the hands of a skilful person, that the art of physic would be defective and imperfect without it, and whoever is thoroughly acquainted with its virtues, and the manner of using it, will perform greater things than might reasonably be expected from any single medicine." May I be excused, whilst thus quoting that first of practical men, if I impress upon your minds, if you would excel in your profession, to read and study deeply the works of Thomas Sydenham? They are few in number, but they are an invaluable treasure to the human race. In the language of his great annotator and admirer, Dr. Rush of Philadelphia, I must say, "They should not barely be read; they should be studied, for there is the same difference between reading and study that there is between exercise and labour. They should afterwards be read over and over, if you expect to profit by them. They should likewise occupy a place in your parlour window, in order to be consulted more easily in every hour's respite from business." SYDENHAM himself has said, in his treatise on dropsy, "If a person will give them a single reading, I am sorry I should be the means of making him lose his time; but if he will peruse them, and commit them to memory, I dare say he will reap such advantages from them as may in some measure equal my wish, and the great pains I have been at in making and compiling them." In thus speaking of Sydenham, I am following, at a humble distance, the example of the great men who have gone before us; and I doubt whether those who have deserted his slow and cautious footsteps have, in their hurry and boldness, increased the knowledge of our art, or promoted the happiness of man.

Other medical men have expressed very similar opinions as to the value of opium, Sylvius prized it so highly as to have declared, that without this drug he would abandon the science of medicine, as holding forth expectations that could never be realized. Fortunately we have in the list I have laid before you, not only valuable auxiliaries to opium, but substitutes for it, nay, even in some instances, agents that are to be preferred to it. Hyoscyamus, in affections of the brain, is preferable to opium; belladonna is more efficacious as a local application in painful affections; and conium has a peculiar influence upon the nervous system, by which pain in some of the most sensitive parts is more immediately lulled, as in diseases of the prostate gland, and in cancerous affections. Digitalis, or fox glove, is endowed with a power of controlling the inordinate action of the heart and arteries, and thus alleviating some maladies attended with peculiar distress, and that disordered sensation to which, medically, the term "anxiety" has been most appropriately given.—*Lancet, Nov.* 5, 1836.

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15. *Cautions to be observed in the employment of soporifics.* By G. G. SIGMOND, M. D.—Great caution is always necessary in the employment of soporifics; there are states of the body in which, however necessary it may be to obtain sleep, yet we cannot have recourse to them without previously preparing the system, and very accurately and minutely weighing all the circumstances. In fevers and acute disease the first favourable system that excites our hopes is sleep; upon this sometimes the whole case turns; the patient to whom we had looked with anxious solicitude, for whom we scarcely dared venture to express an idea that might have induced the friends to entertain a hope, falls into a gentle slumber, his respiration is easy, his skin moist and warm; he wakes, as it were, from the brink of the

grave, refreshed and recalled to continue his path upon earth, even in a firmer state of health than he was previous to his attack. If this sleep has been naturally obtained, it always forms to us an indication of the utmost value; but if it be artificially produced, although it may have been productive of some apparent good, we cannot calculate upon it as enabling us to form a favourable prognosis, and indeed, if we cannot keep up the diffusible stimulating system, the reaction is great, and the constitution sinks afterwards more rapidly.

In almost all cases, narcotics must be administered with great caution, and to give them in every stage betokens an ignorance of the effects they produce. To give opium where the tongue is loaded with sordes, is to produce an irritation and an excitement; to give digitalis where the tongue is red, is to nauseate and lose the power of relieving by it; sometimes soporifics will diminish every secretion, the insensible perspiration, the saliva, the urine, the bile, will be acted upon, from not having taken the precaution previous to prescribing, to remove from the primæ viæ by gentle laxatives, the accumulated mucus which, covering the surface of the stomach and intestines, prevents the capillary circulation from being healthily carried on.

There are some circumstances which may, at first sight, appear of little moment, but which, I can tell you, from some experience, exert a most extraordinary influence upon your successful administration of soporifics; amongst these I will more particularly notice to you the effect of light. You will find that in some diseases, especially in nervous fevers, that if your patient has the stimulus of light, not only will the medicine be inefficacious, but it may, as you will sometimes see, become a source of irritation. It is often necessary that the room in which the sick person is should be kept in absolute darkness, otherwise a large, and what would be a potent, dose will produce no benefit. In some stages of disease, even the presence of a night-lamp will counteract all the good effect that has been anticipated. I have uniformly found the greatest difference in hospital practice result from the administration of a narcotic during the day, and during the night; in the former case it generally makes the patient fretful and irritable, and the various objects which must of necessity keep up a state of excitement, in a ward, militate strongly against it in the day-time.

Quiet is also important, fresh air, but not *cold* air, although the windows should be kept closed; the curtains of the bed should be left open, but not if there is a fire in the room, the flame of which attracts the eye, and such is then the disordered state of the sensorium, that a candle, or glare, will produce all sorts of illusions upon the mind. I have known delirium come on night after night, until the cause was ascertained to be the fire at the foot of the bed, the patient having taken a narcotic draught.

I need, in these days, hardly caution you against the talkativeness of nurses, or their officious zeal in waking the patient from a sweet and refreshing sleep, for the purpose of regularly giving the composing draught.

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16. *On pain and the administration of Anodynes for its relief.* By G. G. Sigmond, M. D.—The first symptom that usually excites the attention of the medical practitioner, as it is that upon which the sufferer most dwells, is pain or disordered sensation, and for that it is that relief is required. But, whenever you are called upon to alleviate pain, you must remember that you do not perform your duty by the administration of a remedy which can produce this effect alone. You are to be aware that pain is the symptom of a disease, and not disease itself, and that, in the greater number of cases, you do not advance one step by giving momentary ease, but, on the contrary, you may do the utmost mischief by masking the disorder, by further debilitating the system, and, besides, you are losing the most valuable opportunity of combating the cause. Again, in some instances, the temporary relief you give adds fuel to the flame, and will afterwards increase the mischief.

You are to examine what other signs or symptoms of disease exist. By combining them and comparing them, you are enabled to arrive at a conclusion as to the nature of the disease, to distinguish it from another, or to form a diagnosis, as it is termed. Were you to administer, during inflammation of the brain or its membranes, where there is acute pain and sleeplessness, a narcotic to obviate both these states, you would do great mischief, by determining still more to the

brain, by preventing the proper biliary secretions, and by losing the time of action; for blood-letting, under such circumstances, would produce all the effects which you might vainly seek from the employment of any narcotic.

I need scarcely observe to you, that feeling is the most universally diffused of our senses over the frame; it is the most simple and common to every part. In some places it is much more acute than in others, for some tissues are alive to the slightest touch, and are endowed with the greatest sensibility. But the organs that are most susceptible are not those which carry on the great actions of life.

Thus, with regard to the brain itself, which many physiologists consider as the seat of sensation, there is not a single part that has not been impaired or destroyed, without any apparent change in sensation. A number of cases have been collected by Haller fully proving this fact, and, with the exception of that disease of the heart in which its blood-vessels are found to be ossified, called angina pectoris, scarcely any pain accompanies some of the most striking diseases of the heart; and, after death, extraneous substances, such as a pin, a bullet, have been found in the heart, producing little or no disordered sensation during life.

Some of the most painful affections to which nature is subjected occur in the urinary organs, and those parts which are subservient to generation; and, fortunately for suffering man, the class of narcotics produces a number of substances which alleviate his pain, although they cannot cure it.

You must learn that there is as great an art in palliating disease as there is in curing it, and that the remedies I am about to speak of to you possess this power in an extraordinary degree; and the medical man who studies these points will possess a most important knowledge, which will be of the greatest service to him. It is a branch of art, I fear, very much neglected. Some individuals do not seem to know that many diseases are incurable, and the consequence is, that they are always attempting an impossibility; they are undermining the still healthy organs, or rashly are terminating existence. It is the duty of every one who practises this profession to study to prolong the days of man to its latest possible hour; and when the cause of disease is too deeply seated, he must teach his patient how he may best diminish the predisposition to it, how he is to avoid the exciting cause, and how best he may remedy the proximate cause.

Every point connected with pain as a symptom, must be deeply weighed before any one remedy is administered, and its connexion with other symptoms will generally prove a guide to the nature and seat of disease.

Pain is sometimes produced by causes visible to the eye, where external inflammation is present, where it arises from distension, compression, percussion, laceration, disorganization, application of extraordinary heat or of cold; but it is likewise seated internally, when its nature is to be ascertained by great attention to concomitant circumstances, by pressure in some instances, by its intensity, its duration, its situation, and by reasoning founded upon practical experience.

Beyond a certain point the body is incapable of bearing pain, and nature prevents all further suffering by suspending or by terminating existence; previous to that the nervous system is convulsed, fever is produced, and delirium supervenes. But when the system suffers from a less degree of pain, whatever the organ may be in which it is present, the great sympathetic nerve sooner or later, feels the influence; hence loss of appetite, nausea, vomiting, and disordered states of the alimentary canal, and of the secretions, are produced. There are accidents to which the body is subject, which occasionally give rise to excruciating and unrelenting pain, for which we vainly seek any remedy, and the suddenness with which life becomes extinct is fortunate for those to whom this calamity occurs.

Ruptures of the stomach, of the gall bladder, of the urinary bladder, destroy sometimes with immense rapidity, so that the suffering is not intense, but sometimes the patient survives some hours in great agony.

Rupture of the stomach is not of common occurrence, it is generally the result of over-distension combined with efforts to vomit. Chevalier mentions the case of a lad, 14 years of age, the inner coat of whose stomach was torn in many places, and that of the duodenum was lacerated completely round; he had eat and drank heartily at a Christmas feast, and was attacked with violent and severe vomiting; next morning he said he felt as if the blood in his head was

boiling, he was unable to swallow, the pulse became irregular, pressure on the stomach caused excruciating torture; he vomited two pounds of blood the following day previous to his death. Sometimes rupture of the stomach follows great exertion; thus a healthy coal-heaver in this town, whilst attempting to raise a heavy weight, suddenly cried out, clapped his hands to his stomach, drew two deep sighs and expired. A lacerated hole was found in the stomach large enough to admit the thumb.

Doubtless overwhelming pain has sometimes the principal share in the sudden termination of life, but under ordinary circumstances I do not believe death itself either to be the result of pain, or that in the greater number of instances it is attended with much suffering.

Medical men have been called upon to declare what quantity of pain individuals can endure, and they judge much by the temperament; the fair-haired, blue-eyed, light-complexioned person speedily faints after its application, whilst he who is dark, sallow, and black-haired, undergoes spasms, convulsion, fever, debility, and delirium, before nature refuses to give up her powers.

Pain may be acute, dull, aching, throbbing; may be increased by motion, by pressure, by the action of any particular organ; sometimes its limit is very much confined, circumscribed to one spot, or it may be very universally diffused; all these circumstances become indications of the particular remedy to which we are to have recourse.

You must remember that your patient is frequently incapable of referring you to the exact seat of pain, and that sometimes the sensation exists in a part at a considerable distance from the organ that is disordered, and were you to apply your narcotic to the point you would not relieve a single symptom. Thus, where the liver is diseased, the right shoulder is complained of; where a stone exists in the bladder, the top of the urethra sympathises; where the cells of the lungs and bronchi are clogged up with mucus, with pus, and with blood, the cough and uneasy sensations are complained of as affecting the larynx; those who have lost an arm or a leg will not unfrequently complain of the pain in the fingers and toes. I have known a blister applied to the thigh on account of pain and numbness there; and narcotics administered where the pulse has indicated inflammation; and upon the consequent death, the kidneys have been found gorged with blood, but the acute pain in the back and the state of the pulse had excited no attention in the medical man.

There are great varieties of disordered sensation which, though they are not immediately painful, are sources of the highest degree of irritation and of annoyance; such as soreness, tension, numbness, rawness of parts, formication, itching; this is sometimes so intolerable as to produce inflammatory fever, it is very frequently caused by various parasitic insects. I have known two cases of individuals, who were so dreadfully annoyed by this plague as almost to find life intolerable; an ointment, the principal ingredient of which is corrosive sublimate, in one instance only allays the suffering; it seems to come on at long intervals, and though it ceases, on the application of the ointment, for some weeks, it still suddenly seizes the person with such intense sensation that he is obliged almost to tear his flesh for relief. In the other instance, hydrocyanic acid much diluted, effected a permanent cure.

When pain ceases, it must, nevertheless, be an object of your care; in very many instances, it is right for you to ascertain whether this has gradually or suddenly taken place; if in inflammation it has suddenly ceased, you must be aware that it may be from mortification; if accompanied with shivering and sensation of cold, however slight, suppuration may be the result; sometimes, as in rheumatism, the pain in the limbs subsides, but in a day or two the heart, or some other organ, is affected, and this has been called metastasis; but, in many instances, I am persuaded in rheumatism, it is the result of an affection of the coronary vessels that supply the heart with blood, and is produced by too much bleeding; for it seldom, if ever, occurs, where venesection has not taken place.—*Lancet.*

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17. *Analyses of Opium.* By G. G. Sigmond.—In the year 1803, Derosne announced that he had procured from opium a peculiar matter, white, crystallizable, and of uniform composition, which he then imagined to be that peculiar princi-

ple in which reside all the therapeutical and toxicological powers by which that drug is so strongly characterized. In the following year Seguin read a dissertation before the Académie des Sciences, in which he pointed out the existence of the most energetic constituent of the drug; he explained the method by which it was to be obtained; he very satisfactorily showed what were its essential and distinguishing characteristics. Here he stopped; and, according to the laws of discoverers, he lost that claim to which he would otherwise have been justly entitled, of being looked upon as the first discoverer, for he did not affix to this substance any name. Had he ventured to call it by any title, to him would have been awarded the merit due to the first observer of that constituent principle which has since been known to us under the appellation of Morphia. To Seguin it is, also, that we owe our acquaintance with meconic acid, although in this, as in the former case, Sertuerner, of Einbeck, in Hanover, carried away the honour of the discovery in 1816. The French chemists always speak with some degree of mortification when, with the honesty which should always accompany science, they prove, that if France cannot actually claim the reputation, her chemists were on the eve, and really deserve the merit of first knowing the important constituents of opium. It was, however, Sertuerner, a German chemist, by whose patient labour and industry the real nature of morphine was unfolded: he placed his discovery upon the firmest basis, for he showed that it possessed the property usually attributed to alkalies, of combining with acids, and of forming, when thus united to them, neutral salts. Sertuerner did not hesitate to give to the scientific world a memoir which, of course, attracted considerable attention. Gay Lussac very properly committed to Robiquet the important duty of investigating and substantiating the facts thus announced by the German chemist. To no individual could such a task have been entrusted, whose capability and judgment would be more appreciated than Robiquet. He commenced his labours, and the first question that he felt called on to inquire into was, what was the nature of the substance that Derosne had discovered in the year 1803? It was proved, even by the process that Sertuerner had pursued, that it did exist, but that chemist had not acknowledged it to be a constituent principle of opium; he had given it as his opinion, that it was a submeconate of morphine. The next question upon which Robiquet was to decide was, what was the real nature of the principle which Sertuerner had discovered, and of which he had given a description.

The results of the investigation, most carefully and philosophically pursued by Robiquet, were considered to be highly satisfactory, and have been universally appreciated. His experiments proved that morphia is an alkaline basis, capable of saturating acids, and of forming neutral salts; that the salt discovered by Derosne was not a submeconate of morphia, but that it was a peculiar principle, and that there was also a peculiar acid existing in opium, namely, the meconic. These analyses of Seguin and Robiquet were universally recognised, and, for a time, the inquiry was considered conclusive, until M. Pelletier feeling, that after fifteen years the science of chemistry had put into his hands a greater number of agents, by which analysis might be carried on, determined to become a labourer in so important a field of investigation; he has been followed by Courbe and others. Pelletier's analysis, in 1832, gave us the results which I shall now mention to you,—morphine, meconine, narceine, meconic acid, a brown crystallizable acid, peculiar resin, oil, caoutchoric gum, bassorine, and ligneous fibre. During the last session of the *Medico-Botanical Society*, a paper from his pen, translated by Mr. Foote, announced his observations on paramorphine and pseudomorphine, the latter of which does not always exist. It would ill become me, as having little opportunities of pursuing an inquiry into an analysis of opium, to make any observations upon Mons. Pelletier's views, but I shall confine myself to enumerating those constituents which I myself have seen when obtained, and of describing the outline of the processes by which, according to the first chemists, they are best procured. I have made all the inquiries upon the subject, and have examined into it with all the attention that I have been enabled to give; the difficulties attendant upon real personal acquaintance with all the points connected with it, are such that no one, not superintending all the stages, could undertake accurately to describe the processes, which are only carried into effect satisfactorily by practised chemists, upon a very large scale. However frank and honest may be the communications made by the individuals who conduct

these operations, there must necessarily be many particulars which can only be known by manipulation and by experience. In speaking of the principles contained in opium, I must particularly thank Mr. Morson, of Southampton row, for the kindness with which he has communicated with me; and amongst those from whom I have had occasion to seek information, I must acknowledge him as most willing, and, from the largeness of his operations, very capable of imparting it. There are, indeed, very few in London who have much experience, and it is only from copying one from the other, that much acquaintance with these points is derived.

The constituents which at this moment I am led to recognise as existing in opium are morphia, narcotina, codeia, narceia, meconia, thebaia, meconic acid. How long these may continue to be the sole principles I know not; but in enumerating these I am borne out by the testimony of the distinguished professor in the royal institution of Great Britain, Mr. Brande, who, I observe, in the last edition of his Manual of Chemistry, gives them the sanction of his recognition. I have now to explain to you the methods by which these are to be obtained, so that their actual existence may be demonstrated to you. Two of these principles appear to be well-defined alkaloids, at least they possess that striking characteristic of unity with acids, and forming neutral salts. These two are morphia and codeia. Various are the processes which have been enumerated for obtaining them. That of Dr. Gregory and of Dr. Robertson seems to be considered the best. The first step in all cases is the proper solution of opium in water. Muriate of lime is added to a concentrated solution, by which agent the meconic acid, and the very small quantity of sulphuric acid which exists, are thrown down, so that meconate of lime, and a minute proportion of sulphate of lime, fall to the bottom of the solution, in which muriate of morphia remains dissolved. To obtain this muriate of morphia the solution is then evaporated to the crystallizing point. The other alkaloid, the codeia, accompanies the muriate of morphia and crystallizes with it. The muriate of morphia is of a dark-brown colour when it is thus obtained, the crystallized mass is then pressed to get rid of the colour, and the process of crystallization is repeated until it becomes perfectly white. The next step is to obtain, from the two mixed muriates of morphia and codeia, the morphia; this is done by dissolving them in water, adding ammonia, by which means the whole of the morphia is precipitated, but the codeia remains still in solution. This liquor is then evaporated down, and then the muriate of ammonia, the codeia, and any proportion of morphia not thrown down will crystallize; on the addition of caustic potash the morphia will be decomposed, the ammoniacal salts dissolved, and the codeia be precipitated. The codeia is to be purified in ether, from which it crystallizes.

The essential characteristics which mark morphia and distinguish it are, that it crystallizes in prisms from its alcoholic solution, that it is but little soluble in water, that it is insoluble in ether, and that it is perfectly dissolved by potassa or soda; this distinguishes it altogether from narcotina, with which it may sometimes be found, but which is not the case when obtained by the process I have just attempted by description to explain to you; it gives a deep-red colour to nitric acid, and one of the most beautiful blues to muriate of iron by candle-light; though it has more of a greenish-hue by daylight; these tests will fully distinguish it from all other of the alkaloids.

According to the excellence of the opium will be the quantity of morphia contained, about 100lb. weight of the drug will yield from 120 to 150 ounces of morphia, and, according to Robiquet, about six ounces of codeia will be obtained from 100lb. of opium also. The salts that have been obtained by combination of morphia with acids that have been noticed are, sulphate of morphia, bisulphate, muriate, nitrate, phosphate, and acetate; and they are obtained by dissolving the alkaloid in diluted acids. Opium contains three other principles which may be considered neutral, neither possessing acid nor alkaline properties. Narcotina, the salt originally discovered by Derosne; meconia, by Courbe and Dublanc; narceia, by Pelletier; and, lately, a fourth, by Courbe, Thebaia. Narcotina is found very abundant in many varieties of opium, sometimes as much is found as of morphia in others. The other three principles, meconia, thebaia, and narceia, exist in very minute quantities. Narcotina is procured by the action of hot ether upon opium, which extracts this principle in a pure state. It may also be precipi-

tated from a solution of opium by means of caustic potash, taking care not to add more than may be sufficient to saturate the free acid. Narcotina is soluble in the acids, also in alcohol, ether, and the oils, and is crystallizable from them all: it has an intensely bitter taste. Meconia crystallizes in prisms, and narceia in silky crystals: they are obtained from the liquors of the first pressings of the muriate of morphia.

From the meconate of lime, which I spoke to you of as having been precipitated in the decomposition on making morphia, meconic acid is obtained. Meconate of lime is dissolved in concentrated muriatic acid at the boiling point, taking care however, that it is not in actual ebullition; it is then filtered, and is repeatedly treated with muriatic acid, until it is completely destructible by heat. The meconic acid will then be obtained in reddish-brown scales, and to be made perfectly pure and white, it must be united with caustic potash, and a meconate of potash be formed, from which it must be repeatedly crystallized until it is perfectly white; it is then decomposed by frequent treatment with muriatic acid, and thus is obtained a perfectly white and pure meconic acid, which, by boiling, is converted into metameconic acid, by sublimation into pyro-meconic acid. Meconic acid becomes a most delicate test for salts, soon producing an intense red colour.

In the *Journal de Chimie Médicale* for September, 1835, will be found the observations of M. Pelletier on paramorphine and pseudomorphine; but I have had no opportunity of meeting with any English chemist who has gone over the same experiments, and, therefore, I can say little on the subject, but that he states that paramorphine comes nearer to narcotine than to any other of the principles, and pseudomorphine to morphia.

In the *Journal de Pharmacie* for 1833, will be found Robiquet's observations on Dr. Gregory's mode of obtaining morphia, and likewise a translation of the original paper, describing the operation of which I have ventured to give a slight sketch, fully aware that the chemist only can explain fully all the steps. M. Robiquet has borne out the preference generally given to the process. Two advantages seem to result from it: the first, that a larger quantity of morphia is obtained, and the employment of alcohol, always so expensive in this country, avoided. M. Robiquet observes, that the first trial he made convinced him that the opium employed by Dr. Gregory, was of a superior quality to that which has been used in France for some years, and not only that ours contains more morphia, but that the proportion of narcotine is considerably less. He expresses his want of information as to the causes that produce this, whether it be dependent on the species of the poppy, the diversity of climate in which its cultivation is pursued, or upon the mode by which the opium is obtained, or upon some sophistication by adding to the opium obtained from the indigenous plant. In order to satisfy himself, he wrote to Dr. Gregory for a specimen of the opium on which he had operated, and which was immediately sent to him, with an explanation, that, as the muriate of morphia was only employed by the medical men in Edinburgh, he did not attempt to obtain the morphia isolated, but in combination with the muriatic acid; this did not explain the difficulty that Mr. Robiquet had found in obtaining a larger quantity of the morphia. He concludes his paper by stating, that he thinks Dr. Gregory's process merits preference from its economy, its simplicity, and its facility of execution; but that he is inclined to believe that the larger quantity of morphia obtained is in some measure owing to the superiority of the opium which is found in this country; and he calls upon the Society of Pharmacy, where his report was read, to return its thanks for the labours of Dr. Gregory, which merit the approbation of chemists.—*Ibid.*

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18. *On the immense quantities of opium sometimes devoured.* By G. G. Sigmond.—Those who have accustomed themselves to the use of opium can increase the quantity in a most marvellous manner, and can with impunity swallow enough to destroy three lives, under ordinary circumstances. Almost every individual who has practised his profession for some time has seen patients take, from being long habituated to its use, enormous quantities of laudanum, or of solid opium, most generally with a view, at least in this country, of mitigating some suffering to which they are liable; but in Turkey, Dr. Smith tells us that the quantity used by the consumers of opium, who seek from it the peculiar excitement it produces, was generally about three drachms; he himself saw a Turk swallow six drachms,

and this served only to increase his cheerfulness. It was about this portion that an individual took who has acquired very considerable celebrity in this country, from his publication of a little volume which was entitled "The Confessions of an Opium Eater." His ordinary dose was 320 grains; for the first eight years of his indulgence in this habit he took it once only in the week, he chose Saturday night, and his great delight was to attend the Italian Opera whilst under its influence, for he found it to heighten his enjoyment of the music in a most extraordinary degree, or else he sallied forth into the markets of this great metropolis to watch the individuals who throng there on that night to purchase their Sunday's meal, and it afforded him a pleasure of which his description can impart to us but a faint impression. One most extraordinary fact is, that he was able, and that without any considerable effort, to diminish his dose in a most remarkable manner. For three years he had not been content to take 320 grains once in the week, but had taken it daily; but suddenly he descended to 40 grains, so that where he had taken an equivalent to 8000 drops of laudanum, he contented himself with 1000.—*Ibid.*

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19. *On Sleeplessness and the means for its relief.* By G. G. Sigmond, M. D., &c.—Sleep has been aptly defined the repose of the organs of sense and motion, whilst the functions of the body are still carried on. From the connexion between the mental and corporeal functions, the tranquillity and quiet given to the body by the absolute suspension of the action of the voluntary muscles during sleep, conduces to the preservation of the intellect, and the healthy state of the system; and sleeplessness, or vigilance, as it has been termed, is one of the most distressing disorders that can afflict us. Not only does it precede, accompany, and aggravate, many diseases, but it likewise is their cause; the nervous system is overpowered, a train of frightful maladies is induced, and sometimes the seat of reason has been shaken.

Tissot, in his work on the "Diseases of Literary Characters," says, that the aptitude of the brain, to restore by sleep the impaired energies of the functions of the body, may be lost altogether.

Want of sleep is of course a very frequent concomitant of disease, is a most distressing, weakening, and dangerous symptom in a great number of disorders. The causes of morbid irritation which produce and support this dreadful malady are many and complicated, and frequently demand our utmost attention. There are instances on record of sleeplessness the most frightful. Bartholinus has spoken of a case in which hemicrania kept a person awake for three months; it was attended with a melancholy, or hypochondriacal state, which lasted fourteen months. Gooch gives a singular case of an individual who had never known what pure sleep was, even for half an hour, yet he lived to be 73 years of age, and enjoyed a very good state of health. He fell one day into a kind of dozing, which lasted about a quarter of an hour; but even that was not sound, though it was all the slumber he was ever known to have had. On the other hand, there are some narrations of a most singular kind, of individuals sleeping for weeks, months, nay, even for nearly four years, with very little interruption. The most singular case of this kind is to be found in the 24th vol. of the *Philosophical Transactions*, and it is related by a physician, Dr. Oliver, upon whose sagacity the utmost reliance could be placed, and as there was every opportunity of closely examining the circumstances he relates, there can be very little doubt of the truth of the particulars he there states:—

Samuel Chilton, a labourer, aged about 25, residing at Timsbury, near Bath, was accustomed to fall into a sleep, from which no one could rouse him till after a month's time; on one occasion he fell asleep about the 9th of April; after some days he, remaining in that state, was seen by Mr. Gibs, of Bath, who was sent for; he bled him, blistered, cupped, and scarified him, and used all sorts of external irritating applications, without producing the slightest effect upon him; he appears, however, to have ate, and to have had some evacuation, though no one saw him do either. This was during the first ten weeks, after that period he remained in the same state for seven weeks, during which he made water once, and had one evacuation.

The duration of sleep should be, in manhood, about the fourth or the sixth of the twenty-four hours; children, the younger they are the more sleep they require;

in advanced stage there is more watchfulness. Excess and defect of sleep are equally pernicious to the system, and injurious to the organs.

Obstinate sleeplessness is a malady that preys upon the system, disordering every function; during the darkness, the silence, and the solitude of night, all the causes of conflicting passion, of anxiety, and of corroding feeling, rise up with redoubled energy, and haunt the broken spirit. The heart beats with terrific violence, there is a gnawing about the præcordia, an unnatural glow of heat succeeded by a damp chilliness, involuntary sighing; a sensation of dread and horror creeps over the system; light is most anxiously prayed for, but when it dawns it brings with it no relief. For this sad state, and often do we meet with it, the soothing attention of the medical man can do much, and though perhaps "the drowsy syrups of the East" may not medicine to the mind diseased, still there are numerous dietetic and moral means which relieve this state. Great attention to diet, to the cutaneous perspiration, to frequent ablution, to hot and cold bathing, will aid the effect of hyoscyamus, of camphor, and of æther, amongst the narcotics; besides these, there are remedies taken from the three classes of the diffusible stimuli; there are, likewise, many plants of which infusions, taken at bed-time, are productive of much good, that have no place in our pharmacopœias; amongst these, the gratiola officinalis has considerable influence, and also the salvia officinalis, the salvia æthiopica, and verbascum nigrum. In the works of the celebrated Dr. Franklin you will find a familiar treatise on the art of producing sleep, which is not unworthy your attention.—*Ibid.*

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20. *Symptoms produced by inordinate doses of opium and the measures for their removal.* By G. G. Sigmond, M. D.—The stage of excitement, after the administration of opium, having passed over, a state of collapse succeeds. There is usually deep sleep or stupor, which forms a diagnostic feature, and which although it may occasionally be found to follow upon the other narcotics, is most strikingly characteristic of this powerful juice. There is an overpowering lethargic state, from which you may for a moment arouse the individual into apparent sensibility; but he instantaneously relapses into a perfect suspension of his faculties. Delirium very rarely occurs; and although we have on record some cases in which convulsions were present, yet they may be considered as very unusual. Almost all the other narcotic poisons are attended by delirium and convulsions as the ordinary symptoms. Conium, or hemlock, exhibits a state nearer approaching to that of opium than the other narcotics; still, coma and convulsions are, generally speaking, present. Where henbane or hyoscyamus has been taken, that union between coma and delirium which is called typhomania, is observed. Belladonna causes delirium and coma; the delirium is often of an agreeable character, accompanied by uncontrollable fits of laughter, and very often there is no sopor. Datura stramonium, or the thorn apple, causes maniacal delirium, with singing and dancing. Nicotiana tabacum, or tobacco, excites convulsions and universal tremor. Æthusa cynapium, or dog's parsley, is marked by spasmodic pain of the stomach, and difficulty of breathing; aconitum napellus, or monk's hood, by maniacal delirium; helleborus niger, or black hellebore, is followed by delirium and high irritation; and the fox-glove, or digitalis, by delirium and general convulsions; the strychnos nux vomica by dreadful agitation and alarm. Extreme cold produces a sopor, and an irresistible sleepiness, that has an approximation to the effects of opium, more nearly than any of the narcotics I have enumerated; and the deleterious fumes arising from burning charcoal cause a somewhat similar state; still it is more nearly allied to asphyxia.

The other symptoms which accompany an inordinate quantity of opium, may be found as the consequences of the narcotics generally, nor do they afford us any very striking diagnostic marks. They likewise vary according to the age, the sex, the habits of the patient, and to the dose that has been taken. Thus, although the face is most generally observed to be pale, there are not wanting instances in which it is described to be flushed. In some cases the breathing is apparently easy, and almost natural; whilst again, in others, it is stertorous, and performed with great difficulty; the pulse is generally feeble and irregular, yet this is by no means a uniform occurrence; the skin is cold, shrunk, and bedewed with a clammy sweat, and has been known, occasionally, to have been imbued with the characteristic odour of opium; the extremities are very generally cold;

the eyes are closed, and on lifting the eyelid the pupil is found to be dilated, and insensible to the stimulus of light. Vomiting occurs, occasionally, at various periods after opium has been taken. Dr. Crumpe, whose ardent love of science, and whose anxious investigation of truth led him to try numerous experiments, which he has admirably detailed in his inquiries into the nature and properties of opium, tells us that he himself, when trying experiments on the different parts of opium, often vomited up what appeared to him the entire quantity of the medicine he had taken, after its having affected him in a very violent manner. It is very singular that a pill of opium, administered at night, will be vomited up in the morning, after having produced its narcotic effect. This is an observation which Van Swieten originally made.

Persons who outlive twelve hours after opium has been taken very commonly recover, death usually occurring about eight or nine hours after the dose, though there are instances narrated where it has occurred within four hours. The symptoms during life are those, first, of sanguineous acceleration to the brain, in the stage of excitement; and, secondly, of reaction in the stage of venous retardation; and in the third stage of congestion, and where, from the largeness of the dose, the two first states are too transient to be perceptible, the intensity of action upon the nervous system is marked only by the fatal impression produced, the collapse is immediate. Under such circumstances the indications to be followed are to remove the exciting cause, and to obviate the proximate, and these are borne out by the appearances which present themselves where examinations have taken place after death. It is not within the scope of this course of lectures to dwell upon that which morbid anatomy must illustrate to you, but as it is a most important point to be attended to, whether as regards the mode of action of opium upon the system, or the treatment which is to be pursued, I must observe to you that the vessels of the brain are generally turgid with blood, that sometimes a watery fluid has been exhaled from them into the ventricles, and that throughout the cerebral mass there is every mark of sanguineous engorgement. Nor must I pass over the generally observed fact, that the blood is ordinarily found fluid throughout the body.

With regard to the removal of the exciting cause, the first object must be to relieve the stomach of the poison, and this is best effected by mechanical means; the irritation of the fauces, with various stimuli, was at one time the only assistance we could have recourse to; but the introduction into general use of the stomach-pump has completely set aside these unscientific methods of evacuating the opium. Its employment, both for injecting warm water and again withdrawing the fluid, must be continued with perseverance as long as the slightest odour of the drug is perceptible, and this may require some considerable length of time where solid opium has been taken, for the glutinous matter adheres most tenaciously to the coats of the stomach. This instrument is invaluable upon such occasions, for emetics are not to be depended upon; besides which, if they cannot bring the stomach into action, from the paralyzed condition in which it is, they may become sources of very considerable mischief should it recover its tone. As the proximate cause consists in sanguineous congestion, venesection appears to be the next step, and then cold affusion upon the head, neck, and shoulders, as recommended and practised by Dr. Copland, and others. I remember on one occasion being exceedingly struck with the instantaneous effect of cold affusion. A female had been taken into the ward of the *Charing-Cross Hospital*, who had attempted to poison herself with laudanum. I saw that she was marked on my list of patients. I found her in a state of most complete sopor, from which it was next to impossible to rouse her. I enquired what steps had been taken, and learnt that she had been placed in a warm bath. On expressing my surprise that the rule I had always laid down of employing the stomach-pump had not been carried into effect, I learnt that that instrument was unfortunately out of order, and could not be used. I accordingly went down to inquire into the subject in the board-room, directing that in my absence cold water should be freely thrown over the head and shoulders. I could not have been away from the bedside more than ten minutes, and I found upon my return that an extraordinary change had taken place; she was perfectly sensible of surrounding objects, and though she relapsed more than once into the state of sleep, she was roused by the same means, and eventually restored to health. It, however, happened, that on her recovery she

drank largely of gin, became intoxicated, and fell precisely into the same state of sopor, although it must have been upwards of ten days since the complete absence of all the symptoms attendant upon the poison.

The possibility of such a return of the symptoms has been alluded to by Pyl, and, therefore, that they should recur from alcoholic intoxication, cannot be a matter of any very great surprise. Diffusible stimuli, camphor, æther, wine, ammonia, musk, have been found serviceable. It is desirable to keep up muscular motion, and to prevent sopor by applying external stimulants. In some desperate cases the injection of tartrate of antimony into the veins, or into the rectum, has been tried with success.—*Ibid.*

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21. *Physiological action of opium.* By G. G. Sigmond, M. D.—As to the theory of the action of opium on the system, many attempts have been made to explain it satisfactorily: some, like the Abbé Fontana, believe it to arise from a change in the mass of blood producing a higher degree of vitality. Balthazar, Tralles, Dr. Brown, and others, ascribe all its effects to its possession of a peculiar power of stimulating the living principle, or acting upon the excitability of the system. Cullen considered it merely as a sedative, but confesses the difficulty that attends upon such an explanation. Haller attributes to it a power over the muscular fibre, as well as upon the circulation. Barbier, Alibert, Nysten, Merat, Orfila, ascribe to opium a power of debilitating the cutaneous capillary vessels; in consequence of their atony their contracting and impelling power is so lost, that the blood stagnates in those vessels, whilst the heart redoubles its efforts to overcome that impediment. In the midst of such conflicting views it is very difficult to select for your judgment that which best accounts for the phenomena which result from this drug. It appears that the fluidity of the blood is increased when opium has been taken, but whether this is dependent upon some change produced by the drug, or whether it is from the excitement of the heart, or from the circulation through the brain, that the blood has acquired this unwonted fluidity, is very difficult to judge. Every circumstance with which we are acquainted fully proves, that the determination of blood to the brain is excessive, and those who believe that organ to preside over the powers of life, and to be the seat of intellectual vigour, ascribe to the stimulus of the opium acting upon the blood, and determining to the most minute capillary vessels, the extraordinary changes in the exercise of the faculties and the powers of the mind that occur. This is a question which is always approached with the greatest doubt, and with feelings of the utter incapacity of man to unravel the hidden mystery which surrounds every part of this deeply interesting subject, involving, as it does, intellectual developement. It is one which, in the darker ages, philosophers were forbad to enquire into, by the superstition and bigotry of the few, but in these days we feel that, with the most profound veneration for that great Creator of all those wonders by which we are surrounded, it is not contrary to his sacred laws that we should explore all his works, and thus our admiration and our adoration be hourly increased.—*Ibid.*

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22. *Peculiar effects of opium on some persons, and its effects in combination with other narcotics.* By G. G. Sigmond, M. D.—There are some instances in which very peculiar effects are produced by opium, and which are ascribed to some unwonted state of the body, or to idiosyncracy; thus, I am acquainted with a physician in London, who, on taking it, although in a very minute quantity, will have over the surface of the body a scarlet efflorescence; and I have attended a lady whose skin is affected with the most disagreeable tingling, and an insupportable itching, from the same cause; and many similar affections occur in different individuals, which preclude the possibility of administering it. In some cases the exhibition of a purgative will remove any difficulties that would otherwise present themselves. The combination with other narcotics, too, occasionally gives rise to symptoms which, when this drug is given alone, do not occur. United with belladonna, it is apt to produce confused vision, double sight, and sometimes disagreeable hallucinations; with conium, or hemlock, it is also the cause of some cerebral affection; but with hyoscyamus, or henbane, it is united without apparently exerting any but its proper influence; hence they are not unfrequently prescribed together, and generally with advantage. United with soap, it may very properly be administered, and its solubility appears to be somewhat increased.

As it is ordered in the pharmacopœia under the name of pilulæ saponis cum opio, it is frequently prescribed where it is necessary to disguise from the patient the peculiar odour and taste: the direction is to take, of hard opium, powdered, half an ounce; hard soap, two ounces; beat them together in a uniform mass; as five grains of this mass contain one of opium, the usual dose is five grains, and a pill should rarely weigh more than that quantity. There is a good formula in the Edinburgh Pharmacopœia, called opiatæ pilulæ, or thebaicæ, in which the drug is concealed by extract of liquorice and pimento berries, of which five grains contain half a grain of opium; and the Dublin Pharmacopœia disguises it by purified storax and saffron, in a pill called pilulæ c. styrace, five grains containing one grain of the drug. The Paris Dispensatory has a recipe for pilulæ cynoglossæ, which contains opium and the seeds of hyoscyamus, nine grains containing one of opium. The great advantage of being aware of these formulæ is, that you may be enabled to prescribe the compounds either of the Edinburgh or Dublin Pharmacopœias, as they are readily made up by the druggist, whenever any difficulty arises in ordering the pilulæ saponis cum opio, for sometimes you will find it necessary to conceal from your patient that you are exhibiting this remedy. Various are the objections which you will hear occasionally raised against it, and sometimes they are of so very trifling a nature, that it becomes your duty not to listen to them. It, however, sometimes does occur, that a patient has, from experience, found bad effects from the drug, and is fearful of their recurrence; you must, therefore, form your judgment from duly weighing all circumstances. The confectio opii is a substitute for the mithridate of the old pharmacopœias, and is formed of hard opium powdered, six drachms; long-pepper, one ounce; ginger-root, two ounces; carraway-seeds, three ounces; syrup, one pint; rub the opium with the syrup made hot, then add the opium, the effects of which are somewhat diminished by the aromatics, as a sedative, but are increased as a stimulant. Under this form it has been preferred by some who have become habituated in this country to its intoxicating influence.—*Ibid.*

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23. *On the employment of opium in fevers.* By G. G. Sigmond, M. D.—In those states to which the name of fever is given from the alteration which takes place in the natural heat of the human body, great caution is necessary as to the stage, the symptoms, the form, and the previous treatment of the disease. Although the great division of continued fevers into inflammatory, and low fevers, or, as they are scientifically termed, into synochus and typhus, must be acknowledged to be perfectly correct, as they are found to be prevailing in all countries, and amongst all people, still almost every continued fever is ushered in by some inflammatory symptoms, although they may be so slight and transient as to be scarcely perceptible, and likewise almost every fever has at its termination some marks of debility. That both these forms have become in this country, either by the more immediate recourse to medical asistance, or by an improvement of the habits of life, much milder, and much less fatal, the records of our art, as handed down to us by the most experienced men, completely prove. The practice of immediate blood-letting so much extolled by our predecessors, at the onset of inflammatory fever, is abandoned upon the authority of all the greatest men of our time, and that which more immediately preceded it. The late professor in the chair of physic in Edinburgh, to whom the great number of the enlightened physicians of the present day owe much of their practical knowledge, I mean Dr. Gregory, used to state in his lectures, and he sanctioned the publication of some notes which contained this opinion, "that he was convinced more and more every day of the general inutility of blood-letting in continued fever; though it might occasionally be necessary when the inflammatory symptoms were very high, such symptoms were very soon succeeded by great debility, which this evacuation always rendered more dangerous. He had sometimes been led to employ it, from the apparent urgency of these symptoms, but had often occasion to regret it afterwards. A complete revolution," he adds, "seems to have taken place in this respect, especially amongst practitioners here. A candid old gentleman confessed to me that he does not employ the remedy now above once for thirty times he did formerly." In most large towns this opinion is decidedly prevalent, Dr. Clark of Newcastle, and others, concur in expressing it; it is not the same, however, in the country, or in the army and the navy, where the constitutions of individuals are much more

robust, and inflammatory symptoms are much more likely to exhibit themselves in their most acute form. Even in this great metropolis, the physician must be struck with the different appearances of fever, in different districts; thus, the diseases that presented themselves to me, at the Marylebone General Dispensary, were generally much more acute, and the inflammatory symptoms much more prevalent, than those which I attended at the Charing-Cross Hospital, for the patients in the former instance lived in larger houses, on fuller diet, and in more open streets, than those who, coming from a closely-peopled neighbourhood, near the river and its fogs, were in a much more debilitated state. The low fever, or typhus, which, from the excessive havoc it committed, was formerly so much dreaded, and was called malignant, putrid, pestilential, has lost much of its virulence in these days, and we scarcely ever see cases marked with those dreadful symptoms we find mentioned formerly; much of this is owing to personal cleanliness, and to the state of our apartments and houses. Such was the dreadful neglect of attention to dress, in the days of the Stuarts, that artificial odours were absolutely necessary for every person going into society; perfumed bags and pillows, scented gloves, which breathed forth rue, rosemary, cedar, and cinnamon, were obliged to be worn. The description of the celebrated Prince of Conde, with his uncombed hair, and untied cravat, and accumulated dirt, is read with astonishment in the present age. The floors of the rooms were never washed, they were generally strewed with rushes, which were seldom removed; tapestry covered with the dust of ages, filthy canopies, hangings inaccessible to purification, were all food for typhus fever, whilst the little narrow gothic windows scarcely allowed a breath of air, or the light of day, to restore healthy circulation to the confined space.

In the first days of inflammatory fever, opium is not to be administered, although various symptoms may present themselves which might almost tempt even the wary practitioner to employ it; in the beginning, the increase, or the height, of this disease, this medicine is only calculated to do mischief; it must then be combated by antiphlogistic means, by emetics, by purgatives, by diaphoretics; before the twelfth day it should not be administered, and that is the earliest period at which, from the concurrent testimony of the greatest of our authorities, that it can be employed. The various theories that have been advanced to account for fever, have in many instances led to much mischief, and have caused us to abandon the cautious but successful practice of those who have preceded us, and probably, also, "pressure from without" has had considerable influence. The people of this country are very anxious for quick results; they vibrate between a love of taking physic, and a dread of its effects; when they are in health, they are constantly quacking themselves, and when they are ill, they are afraid of the remedies that are of the greatest service to them, and more particularly if they require time to produce their effects. Hence they are likely to be imposed upon by the ignorant pretender to science, and to annoy their well-informed medical attendant by their preposterous expectations. To watch a fever, and to assist the efforts of nature, is seldom permitted, so that, in the greater number of cases, that which would be what our forefathers called a pure fever, is complicated with a variety of morbid affections, and hence spring up gastric, gastro-enteric, pulmonic, cephalic, hepatic, or cardiac fever, and thus, merely because one organ of the human body has some predisposition to disease, which is developed during the period that the nervous system has lost its equilibrium, that which is only a symptom is treated as a cause; and hence a loose, vague, and mischievous practice arises; one particular organ excites all the attention, the disease is treated probably as if seated in that particular organ, and the real fever is considered a symptomatic. The violent head-ache, and the delirium of fever, for which an opiate is, about the fourteenth day, almost a specific, are often considered as an affection of the brain, and blistering and bleeding are often had recourse to, though these symptoms are connected with general debility, requiring opposite treatment; the cough that sometimes accompanies the whole course of continued fever is often supposed to indicate pulmonic disease, and in some instances has, from the expectoration that with difficulty is brought up in consequence of weakness, been pronounced to be a proof of phthisis pulmonalis. For this cough, in the latter stage, a few drops of laudanum, in almond emulsion, act as a charm, whilst at the commencement it is highly prejudicial. The want of sleep, as well as the

delirium in the commencement, calls for no opiate, and need not be a subject of much anxiety, but as soon as the bowels have been unloaded, and the first period has passed, it may be administered; previous to this, linen dipt in rose-water, applied as Sydenham has prescribed, "cold to the forehead and temples, will prove of greater service than any opiate." If emetics have not been given early in continued fever, particularly where vomiting has occurred, diarrhœa supervenes, and then the greatest discrimination is necessary in the administration of opium, and I confess that I have felt much uncertainty in numerous cases that I have attended in hospital practice.

A number of patients come into a hospital in the last stage of fever, and diarrhœa is one of the most common symptoms, of course betokening the greatest debility. These cases have been variously treated, according to the best judgment of different individuals, with whom there is no opportunity of conference to learn what the early symptoms were, or what has been the practice pursued, and hence the physician is at some loss to form his judgment whether to check the diarrhœa, or to consider it a critical evacuation; and, again, another consideration is, whether by so checking it we prevent the natural secretion from the intestinal canal. In the greater number of instances, I believe that opium, properly given, that is, in small doses, in tincture, or in wine, and often repeated, is the safest and most judicious plan to pursue. When tremors and subsultus tendinum are present, they indicate a state of extreme debility, and require the use of wine freely, and large doses of opium, often repeated; as soon as the dose has lost its influence, another of equal magnitude must be given. In general, the patient bears a full dose at once, in this state, better than the smaller quantity, which I would recommend to check diarrhœa. If the heat of the body be much above 98, which may be considered the natural temperature (and the best mode of ascertaining it precisely is by placing the bulb of a small thermometer under the tongue), or if the skin be dry, opium will not produce that effect which is so desirable in fever, and in most instances will rather tend to increase the heat, the agitation, and the restlessness. This may often be obviated by gently sponging the body with weak vinegar and water, from which the chill has been taken, caution being used to prevent any exposure of the body too suddenly to cold; by such means the heat of the surface will be diminished, the skin become moist, and a gentle perspiration be excited, and Dr. Currie even advises, "after opium has been exhibited, when the inordinate heat prevents its sedative operation, to use the tepid or cold affusion, which will be found safe and salutary." I may observe to you, that the stimulus of heat on the surface of the body will, in a vast number of diseases, prevent the effect of opium as a sedative, and thus, often, in the evening, during the exacerbation of fever, it will prove injurious, whilst it may most successfully be given at two or three in the morning, after the patient has lost some of the heat of surface; the sudorific effect of opium is then perceptible; the compound for which Dr. Dover, a singular specimen of the half-quack, half-physician, has been celebrated,—the pulvis ipecacuanha compositus,—in the dose of ten grains, containing one of opium, one of ipecacuanha, and eight of sulphate of potash, mixed together, is, as a diaphoretic, of the greatest value. A moist tongue is absolutely necessary for the exhibition of opium, and more especially in its solid form; and therefore when we perceive, as is often the case in the last stages of continued fever, that it is dried and glazed, we cannot expect to derive any advantage from its employment; indeed, in that state of tongue, under almost all circumstances, it is contraindicated, excepting where any hemorrhages, or fluxes of blood, occur, for during those states of body we are often obliged to have recourse to an opiate, and we find that the state of the tongue need not influence us in any way in its exhibition.

In typhus fever, where the system must be supported, wine is the best diffusible stimulus, and, combined with it, cinchona; the next is opium, but to aid and increase its effects, æther, camphor, ammonia, and the diffusible stimuli, must be added.

The ancients seem to have had recourse to opium in intermittent fever, and Galen, when discussing theriaca, speaks of his own experience of its good effects. Alexander Traceian recommends it in quartans; certainly the moderns have with great exactness marked the period at which it is given with decided success, namely, about two hours before the expected paroxysm, and again just as the hot

stage comes on; but this mode of practice has been the result of much consideration and of protracted discussion, in which Dr. Lind, M. Duchanoy, Bergeret, and Dr. Trotter, assisted by their experience and observation. The use, however, of bark and of sulphate of quinine is so general, that opium is less required now than it formerly was; but the administration of ten minims of the tinctura opii, half a drachm of spiritus ætheris nitrici, in an ounce of mistura camphorata, about two hours before the expected paroxysm, and again repeated just as the hot stage commences, will generally prevent the advance of the paroxysm, or render it much milder or shorter. Thus it becomes a most important auxiliary to bark, and where that valuable febrifuge cannot be taken, it may prove successful alone.—*Ibid.*

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24. *On the employment of opium in the Phlegmasiæ.* By G. G. Sigmond, M. D.—In the class of diseases called inflammatory, or phlegmasiæ, great caution is always necessary in the employment of opium. To lay down, as some writers have done, a general rule that it is very prejudicial, is at once unscientific, and contrary to the opinion of some very acute and able men. Dr. Armstrong, in the first volume of the *Transactions of the Associated Apothecaries of England*, has discussed this subject, and described his own practice; his views have excited some attention, and he has found many followers. He was accustomed, in acute inflammation of the peritoneal coat of the stomach, to see the patient bled to complete relaxation, or syncope, and on his recovery from that state to administer at least three grains of opium, in the form of soft pill. He visited his patient four hours after; if pain existed on pressure on the abdomen, with a hot skin, a quick, jerking pulse, he repeated the bleeding in the same decisive manner, and then prescribed two grains of opium, and four of calomel. He states that after this treatment refreshing sleep and free perspiration portend the recovery; where these do not occur, a third venesection, with one grain of opium, and two of calomel, he thinks necessary. Dr. Graves, in the *Dublin Journal*, has given some observations on the use of opium in inflammatory disease, and more especially abdominal phlegmasiæ. All those who have employed opium in these diseases have generally recommended previous blood-letting to a considerable extent, and, certainly, it is only where this has been judiciously carried into effect that any success has attended it. The secretions are too often locked up by its use, and, besides, the disease is masked, and sometimes proceeds to a fatal and unexpected end.

The greater number of authorities are opposed to the administration of opium in the earlier and more active states of inflammation, more especially where the great organs upon which the actions of life depend are compromised; but the same individuals who have thus given us the best precepts, admit of its exhibition with a due degree of prudence and caution after those free and copious evacuations, which long experience has taught to be absolutely necessary. In cerebral and pneumonic inflammations, the worst symptoms will be aggravated, unless active venesection has preceded its use; where a remission has taken place, in consequence of such treatment, opiates may safely and advantageously be administered. Where the circulation is accelerated, and a determination to any viscus has occurred, accompanied by pain and tension in its vicinity, and where there is the peculiar hard and wiry pulse which denotes that increased vascular action has taken place, we have no right to trifle, in any way, with the case; we must have recourse to depletion, and avoid the use of opium, and although there may be opinions at variance with the doctrine, even in simple catarrhal affections, at their commencement, its use is contraindicated; but although this is the case in inflammation of the viscera, or the mucous membranes, it is not so when the muscles and the joints are thus attacked.—*Ibid.*

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25. *On the employment of opium in Rheumatism.* By G. G. Sigmond, M. D.—In rheumatism in its most acute form, I look upon opium as a specific; and this lesson was taught me by watching the practice of my revered preceptor George Pearson, and adopting the treatment which I saw uniformly successful at *St. George's Hospital.* To him I must always look with respect,—"Hunc illum video mihi principem, et ad suscipiendam, et ad ingrediendam rationem horum studiorum." He was a man of very considerable practical knowledge; but in the treatment of no disease did he exhibit more masterly skill than in that of rheumatism, which he uniformly cured by means of opium, exhibited sometimes in the form of the

pulvis ipecacuanha compositus, ten grains every six hours, and sometimes combined with calomel, two grains of which, with one of opium, he was in the habit of administering every four hours, until the mouth was very slightly affected.

The sudorific plan was, however, more generally pursued by him; the combination with calomel only when there were symptoms of disturbance of the chylopoietic viscera, or a marked plethoric state of the system. I have constantly found that those of his pupils who followed his footsteps have been equally successful. You will find, in the volumes of the *Medical and Physical Journal*, many instances of the good effects of this practice detailed by those who tried his plan. You will observe, in the volume for 1812, some cases related by Mr. Scott, with some very judicious and valuable remarks upon his skilful preceptor's maxims. Dr. Pearson placed no reliance whatever on blood-letting; to produce the most copious perspiration by the Dover's powder, seemed, generally speaking, to be his wish, and upon this he rested his means of cure, and the good results were most apparent.

Bear in mind, however, that if you have commenced your treatment of rheumatism by blood-letting, you must not attempt to administer opiates in any form; as Dr. Rush observes, you thereby only protract the symptoms; and, indeed, Sydenham, with his usual sagacity, perceived this; he was a decided advocate for bleeding, and had no faith in the employment of opium, "the use of which" he says, "requires more copious bleeding, and, therefore, though the pain be ever so violent during the whole course of the disease, yet when I intend to effect the cure solely by bleeding, I judge it highly necessary to refrain from opiates, because the disease is fixed thereby, and does not yield so readily to bleeding; so that when such medicines are given too freely, bleeding must, in consequence, be oftener repeated than is otherwise necessary; besides, in the height of the disease, they do not answer the expectation we have conceived by them." These important doctrines have been held sacred by Cullen, by Van Swieten, by Pringle, and by Rush; and the favourite mode of treatment of acute rheumatism is by blood-letting. Experience has, however, taught me the value of Dr. Pearson's plan, and many of you have had opportunities of witnessing its success. It does not leave debility behind it, nor does chronic rheumatism supervene. I have sometimes found the wine of the root of colchicum, half a drachm, a scruple of carbonate of magnesia, a drachm of spirits of nitric ether, in an ounce and a half of camphor mixture, every eight hours, of essential service, after the Dover's powders have produced their excretory influence, more particularly when some slight and transient pains have occurred after the acute stage has been cured. Some individuals, and those, too, whose opinions are worthy of the deepest respect, still, as I have observed, prefer blood-letting; and they state a fact which is most true, that just before the sweating bursts forth, the pain becomes almost intolerable; this, however, is relieved immediately that the skin is influenced.—*Ibid.*

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26. *On the administration of opium in Gout.* By G. G. Sigmond, M. D.—In gout opium may be occasionally used to allay excessive pain, in the first paroxysms, occurring in early life; but, at later periods, most practical men are adverse to it. This disease is evidently much less frequent than it formerly was in this country. I can remember the time when very few persons, of a certain condition in society, had not some occasional fit of the gout. The country gentleman, a species now almost extinct, was of no estimation amongst his domestics and tenants, unless he now and then was visited by a few twinges. This most probably, depended on the enormous quantities of wine occasionally drunk, and the life of ease which was passed. The *Treatise on Gout* by Sydenham, is the most masterly medical production that ever was penned, although written with a modesty and diffidence rarely to be found. He was himself for thirty-four years afflicted with it, and his immoderate application to this treatise, singularly enough, occasioned the severest fit of the gout he ever had. My own experience is, I must acknowledge, not sufficient in this disease to lay down any decisive doctrine, such as that I have delivered when speaking of rheumatism; but I have seen very beneficial effects result from the use of Dover's powders. My own mode of treatment has been, as I shall hereafter have occasion to tell you, by means of colchicum, which, I think, cautiously and warily administered, is a specific remedy. In gout in the stomach, or where there is an atony of the system, opium becomes a very important remedy, and affords the surest relief.—*Ibid.*

SPECIAL PATHOLOGY AND SPECIAL THERAPEUTICS.

27. *On the colour of matters discharged from the Bowels.* By Professor GRAVES.—The colour of matters discharged from the bowels is subject to very great variety. In some cases they are clay-coloured or whitish, somewhat like barm; and I have seen them still whiter, and approaching the hue of milk. It is in cases of the latter kind, where the discharges are of a milky appearance, that persons have been said to pass chyle, and their emaciation has been attributed to a deficiency of nutriment depending on this cause. This, however, is not the fact: in some cases of chronic dysentery and diarrhœa, a fluid-whitish discharge takes place from the rectum, but this is not chyle, it is only the changed mucous secretion of the irritated portion of the bowel. It is very curious to observe what different products the same set of secreting vessels will give rise to, according to the mode in which their vital action is affected.

In other cases the discharges from the bowels consist of fatty matter, which bears a strong resemblance to wax, or adipocire. Again, we may have them of a very dark, or even black, colour. I have seen the stools quite black in particular forms of dyspepsia. Some time ago I attended a gentleman at Drumcondra, who exhibited this change in the colour of the intestinal secretions to a very remarkable degree. He was a very large man, accustomed to eat and drink very heartily, having, no doubt, a very capacious stomach and bowels, and a great quantity of fluids and solids. I mention this in order to give some explanation of the enormous quantities of this black fluid which he passed by stool and vomiting. After complaining for a considerable time of dyspeptic symptoms, he got an attack of vomiting; and as he drank freely of diluents during the act of emesis, the quantity of this black fluid which he threw up was amazing; indeed, I might say, without exaggeration, that he vomited by the gallon. With this he had eructations of sulphuretted hydrogen to such an extent, that it was almost impossible to remain in the same room with him. His tongue was as black as ink, and though frequently cleansed, resumed in a short time its former hue. He also passed an enormous quantity of the same stuff by stool. This matter I ascertained, by numerous observations and experiments, to be a secretion from the mucous membrane of the bowels, and not depraved bile, or blood changed by the acid secretions of the bowels. Black stools may also depend upon the presence of other matters, as in case of melæna. Melæna consists of a discharge of grumous blood from the intestines, either with or without black matter. The following is the way in which it occurs. Blood is secreted slowly into the intestinal tube; while it remains there it is acted on by the acid secretions of the intestines, the effect of which is to change the colouring matter into a black, and in this state it is passed by stool. Again, there are other cases in which the discharges from the bowels are found of a tarry and viscid consistence, and having a greenish-black appearance: this would appear to be connected with a vitiated state of the biliary secretion.

I have spoken here of three species of black discharge, each of a different kind, and requiring to have a distinction made between them for practical purposes. Now it is said, if blood be present, you can easily recognise it by putting a portion of the discharge, inclosed in a small linen bag, into warm water, when, after remaining some time, the linen will be stained of a reddish colour. If you take a portion of the tarry discharge, and drop a little of it into water, it will communicate to it a yellowish stain. On the other hand, the black fluid, which consists of vitiated mucous secretion, will not impart either a red or yellow tinge.

I may further observe, that various subjects used medicinally communicate a particular tinge to the alvine discharges. Thus acetate of lead, when it meets with sulphuretted hydrogen in the intestines, changes the stools to a black colour. Again, many of the salts of iron have the same property. Other substances, such as logwood, bilberries, &c. impart to them a red tinge, while the continued use of chalk mixture is apt to render them whitish or of the colour of pipeclay. This is apt to give rise to suspicions of the existence of obstruction of the liver; and in one instance I was deceived for some time by it myself. With respect to the greenish-coloured discharges, they are those which are most frequently met with, particularly in children, and are therefore entitled to a greater degree of con-

sideration. There is nothing more common than to meet with cases of this green discharge during the period of infancy; and I regret to state that a great deal of error has prevailed on the subject. Greenish stools are generally looked upon as a sign that the child's liver is out of order, and as an indication for giving calomel. This, however, is by no means true: they not unfrequently depend upon irritation of the intestinal mucous membrane approaching to inflammation. The proper mode of treatment here consists in adopting measures calculated to remove irritability. In such cases, warm baths, the application of rubefacient liniments to the abdomen, the use of antacids, such as chalk mixture, the carbonates of soda and ammonia, small doses of laudanum, and hydrargyrum c. cretâ with Dover's powder, form the best remedies; and their operation will be very much assisted by a careful attention to diet. You will sometimes, it is true, meet with greenish discharges in adults, but then they are not so fluid as those of children, nor are they attended with the same irritability of the gastro-intestinal mucous membrane. Here the best plan of treatment is the Abernethian: blue pill at night, and a mild aperient in the morning, will be sufficient to correct the intestinal derangement, particularly if assisted by a well-regulated diet, and exercise in the open air. But in children the greenish discharge is often of a much more acute character, and more closely allied to inflammation, or rather irritation; although in some cases it may go on for a considerable time without producing any actual disorganization. It is on account of the property which calomel and other mercurials, exhibited internally, possess of causing irritation in the first instance, and if pushed farther, inflammation of the mucous membrane of the intestines, that they are also apt to produce discharges from the bowels, copious, fluid, and mixed with green mucous flocculi, resembling closely-chopped *spinage*. Sometimes the dejections consist of this green mucus nearly unmixed with any thing else, and then they appear like semi-fluid boiled spinage. Now most practitioners think that this green colour is derived from bile which the mercurial has brought down in unusually great quantities from the liver, excited to a more energetic act of secretion. It has nothing to do with the bile in many cases, but is entirely derived from the irritated membrane of the intestines. Long ago I pointed out, and was the first to point out, this fact in the Dublin Hospital Reports. It has very important practical bearings.—*Lond. Med. Gaz.*, August, 1837.

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28. *Treatment of Gonorrhœa.*—M. Velpeau considers a mixture of balsam copaiva and cubebs as the best internal remedy for gonorrhœa. The following is his formula for this mixture: ℞. bals. copaib. 3ij.; pulv. pip. cabebæ 3iv. to 3vj.; gum. opii. gr. ij.; to be formed into a paste with a little magnesia, and the mass divided into six parts, one to be taken morning, noon, and night. Three doses, he says, is usually sufficient to effect a cure. The discharge is usually arrested the second day; but if the remedy is stopt, the discharge will return. He therefore, generally, after the first dose, allows the patient to abstain one day from the medicine, and resumes it again the fourth day, and continues it three days; then one day's rest is again allowed, and the medicine recommenced the eighth day, and continued four days.

M. Velpeau has tried the tincture of iodine so lauded by M. Broglia, an Italian surgeon, the balsam of styrax and the tannin, and has not found any of them worthy of confidence. The same has been the result of his experiments with gunpowder mixed in brandy, a popular remedy in the French army, and with its several ingredients separately.

M. Velpeau reposes but little confidence in antiphlogistics as an inclusive method of treatment, though he considers them as often valuable and efficient auxiliaries.

Mercurial frictions M. V. considers useful when the urethra is indurated, presents nodosities, or there is reason to suspect ulcerations in this canal, but they are alone incompetent to effect a radical cure of gonorrhœa.

The successive application of small blisters to the space between the root of the scrotum and the anus, M. V. considers useful in old cases, but ought to be resorted to only as an auxiliary measure, or in certain cases.

As to resolvent frictions with iodine, &c. M. V. thinks that they will be found useful in a few cases, and as auxiliary means of treatment.

Acetate of lead in solution, wine and water, pure wine, and other astringent

injections, M. V. considers as more or less efficient in the cure of gonorrhœa. In cases of long standing M. V. asserts that a solution of sulphate of zinc, one grain in a mucilaginous decoction, to be productive of remarkable benefit. The balsam of copaiba, as an injection into the urethra, also sometimes effects a cure in five or six days. The solution of the acid nitrate of mercury, much eulogised recently as an injection, M. V. has found injurious instead of beneficial. The nitrate of silver in solution as an injection, has, on the contrary, been highly useful in old cases; but M. V. has derived most advantage from it when combined with a methodic compression of the urethra.—*La Presse Médicale*, 18th and 25th Jan., 1837.

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29. *Treatment of Tinea.*—The following method of treating tinea is recommended by Dr. SCHNEIDER. A circumscribed portion of the eruption is covered with Jasser's ointment, composed as follows: ℞. sulphur. purificat. vitriol alb āā ʒij.; axung recent ʒvj.; M. F. unguent. In a few days the crusts begin to split, and soon fall off; the secretions change their character, and a cure is rapidly obtained. A mercurial purge is given every eight days, and the child takes for drink a decoction of the woods. The mean duration of the treatment is from four to five weeks.

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30. *Cure for Foul Breath.*—M. CAVARRA has uniformly succeeded in curing by means of the following gargle, the foul breath which arises from a morbid condition of the mouth. He was led to its habitual employment by the complete relief it afforded in a case of foul breath from mercurial salivation. ℞. sulph. alumin. et potass. ʒij.; aq. puræ ʒiv. M. Ft. gargarism.

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31. *Influence of Vaccination on Hooping-cough.*—Experiments made at the hospital for children in Paris, tend to show that vaccination exerts no control over the progress of pertussis. Ten children labouring under this disease, who had never been vaccinated, have been admitted into the hospital just named within the last four years, and of these nine were vaccinated. Pustules were regularly developed, but the hooping-cough was in no respect modified by the vaccine disease.—*Bull. Gén. de Thérap.*, 30 July, 1836.

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32. *Mercurial Ointment for the cure of Chilblains.*—Dr. DESGRANGES has employed the mercurial ointment for the cure of chilblains with the happiest effects. The parts being first rubbed with the ointment, are then covered with a piece of linen spread with the same. M. G. often weakens the common ointment by adding simple cerate, in the proportion of one or two drachms of the former to an ounce of the latter.—*Journ. de Méd. Prat. ou Recueil des Travaux de la Soc. de Méd. de Bordeaux.*

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33. *Tannate of Lead in Gangrenous Sores.*—Dr. TOTT has employed the tannate of lead in several cases of gangrenous sores, with marked advantage. The preparation may be made by pouring a solution of acetate plumbi drop by drop, on a decoction of oak bark, as long as any precipitate forms. The precipitate is then collected and spread on linen, or united with lard in the proportion of two drachms of the former to an ounce of the latter.—*Gaz. Méd.*, Jan. 1837, and *Graefe und Walter's Journal der Chirurgie*, &c. B. xxiv.

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34. *Remedial powers of the Aconitum Napellus in Headache.*—W. C. RADLEY in a communication to the Lancet, (Sept. 23, 1837,) extols the efficacy of the extract of aconite in the cure of nervous headache, especially when it occurs in delicate and nervous persons. The form in which Mr. R. administers the remedy is in pills in doses of one grain repeated every hour until relief is obtained.

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35. *Artificial respiration during convulsive fits in children.*—Dr. LAWSON CAPE is of opinion that in the asphyxia that is frequently met with during a convulsive fit in young infants, many a child has been lost,—after the long-suspended act of respiration has ceased entirely—from the attendants limiting their measures to hot baths, frictions, cold water splashings to the face, stimulating applications to the nostrils, &c. &c., when artificial inflation of the lungs, with the alternate expulsion of the air by pressing the chest and abdomen, would have restored the lost

function, and recovered the child. Dr. C. relates the following case, illustrative of his opinion:—"On the 20th March, 1837, an infant in Nottingham Place, five days old, had been in perfect health up to the moment that he was suddenly seized with a most severe attack of convulsions, the cause of which appeared to be the overloading the stomach the preceding evening. The fits began by the muscles of the eyes and face being thrown into violent clonic contractions, producing the most frightful contortions of the features; the pupils were dilated, the whole face and head turgid, as if the veins were going to burst, and of a deep blue, or rather purple, colour. The respiratory muscles next took on the convulsive action, and caused the greatest oppression in the breathing; indeed the respiration was *completely stopped in most of the fits*, and recovered, after a frightful interval, by convulsive gasps and sobs, followed by deep sighs. The other muscles of the body and limbs then followed, and the whole muscular system became involved in the spasm.

Between half-past, 8 A.M., and 9, P.M., the infant had thirteen fits, ranging in duration from a few minutes to three quarters of an hour.

"The main indication in the treatment was to get the bowels to act, and to relieve the pressure on the brain. The child had been put into a hot bath by the nurse, which was repeated during the second attack, without apparent benefit. A leech was applied on the frontal bone, near the fontanelle; half a grain of calomel and a grain and a half of jalap, with a tea-spoonful of castor-oil, were given every four hours, and the lower part of the bowels repeatedly evacuated by injections of soap and water and castor-oil. The strength was kept up by injections of jelly, with a few drops of sal volatile or brandy in them. After the twelfth fit, the bowels acted for the first time from the higher intestines copiously; after which there was only one mild though long seizure, when they entirely ceased; the child went to sleep, and was perfectly well the next day, and has remained so ever since, without the slightest symptom of any return.

"The whole case shows to what extent functional mischief may affect the brain and spinal column, excited by sympathetic irritation, without any inflammation or change of structure, for the fits ceased almost immediately after the operation of the medicine administered by the mouth; as, though the enemata emptied the large intestines, this did not have any effect upon the symptoms, the obstruction seeming to be in the *upper* portion of the canal.

"The pressure produced upon the brain was such that respiration was entirely suspended during the greater part of the fits, and even the action of the heart could not be felt for more than ten minutes in the third and twelfth fits, and the child lay to all appearance dead. It was at such times that I proceeded to restore the suspended functions by artificially inflating the lungs by breathing into the mouth of the infant from my own, closing the nostrils, and compressing the thorax after each inflation; observing the natural periods of frequency as much as possible. I am quite convinced the child would have been lost, had it not been for the artificial aid thus afforded to nature in the severe struggle, till the offending matter was expelled. By means of the artificial respiration, the colour (especially of the face and lips) turned from purple to red, but still there was no breathing, till a convulsive gasp announced the termination of the fit.

"I am aware that some have recommended a tube to be passed into the larynx, in preference to breathing into the mouth; and also many have objected to the employment of one's own breath, as the expired air is loaded with carbonic acid, and deprived of a portion (though a small one) of its oxygen. The success of the plan I employed, however, is quite sufficient to justify its use, and it is much more easily effected than by means of the tube, which has sometimes seriously injured the soft parts, and is too readily displaced. A purer air would no doubt be more proper, but unless its temperature could also be kept up to that of the human body, we should lose one of its restorative properties, of perhaps as much consequence as the other. In the cases where artificial respiration was kept up in animals under the influence of narcotic poisons, by Sir B. Brodie, as detailed in his Croonian Lectures, the temperature of the air employed was thus artificially elevated; but in the hurry and confusion of a still-born child or a convulsive fit, there is no time to make the necessary preparations. What I would most wish to insist upon, is the necessity of perseverance in such instances; and perhaps the history of the case I have given may induce others to persevere in the same manner *to the very last* (*lateat scintilla forsitan.*) and thus perhaps, as in this instance, restore an only child to its anxious parents."—*London Med. Gaz.*, Oct. 1837.

36. *Tubercular Leprosy.*—An interesting paper on this subject was read to the Medical Section of the British Association, at their meeting at Liverpool, by Dr. Hancock, who sojourned many years among the Indians of Guiana:—"The first part of Dr. H.'s paper went to show that the disease in question has been usually confounded with elephantiasis, or what is termed the Barbadoes *leg* and Siam disease; in which the skin and soft parts about the leg and ankle become so enlarged as to bear a close resemblance to the leg and foot of an elephant—a local disease confined to the affected limb, and perfectly distinct from the true Lepra Arabum, in which the whole body, or the entire mass of fluids and solids, appears to be implicated.

"In treating of the causes and symptoms of the disease, Dr. Hancock thought that it obviously consisted in a vitiated condition of the blood and serous fluids; but this appeared to be connected, either as cause or effect, with obstructions of the absorbing and secerning vessels; this, together with a peculiar predisposing diathesis, determines the form of the disease. The obstruction and a faulty secretion produce serous deposites under the skin, forming the tubercles, knobs, or indurations, which soon characterize the disease; in proportion as they increase in number and magnitude, the circulation, with the absorbing, secerning, and depurative processes, become daily more obstructed. The process being slow and gradual, the humour solidifies almost as fast as it transcends. The tubercles are of a copper or leaden colour, and more numerous on the legs and thighs. There is stiffness of the eyelids and thickening of the palpebra: the voice becomes hoarse and nasal, and the respiration more or less affected. Varicose veins and knotty pustules are observed about the root of the tongue; and in the advanced stage the whole countenance becomes distorted, full of knobs and tubercles, and of a hideous aspect. In the last or ulcerative stage, the hairs fall off from the eyelids, eyebrows, chin, and other parts; the toes are swelled, and crack with dry fissures, and the skin becomes quite callous and insensible. A corruption of the whole mass of humours, and general disorganization of the solids, ensue; hectic fever supervenes, and terminates the existence of the miserable sufferer. In some cases a few solitary symptoms will occur, whilst in others many will appear almost simultaneously.

"Dr. Hancock adduced a variety of arguments to prove the perfect identity of Lepra Arabum with the Radesyge of Norway, Sweden, and other northern countries. He had been led to investigate this part of the subject from having seen, with surprise, in the 18th volume of the Edinburgh Medical and Surgical Journal, a summary of symptoms drawn up from Holst, Stowe, and other writers, with the view to prove their *non*-identity. The objections contained therein were shewn to arise from a misapprehension of the subject, or from an over anxiety to establish certain preconceived opinions. Not only did the whole train of symptoms agree in every particular, but also the general progress of the two diseases, and the morbid changes which take place. Dissections of those who had died of leprosy had not afforded to the writer evidence of such changes in the genital organs, as have been adverted to by certain writers. It was worthy of remark, that the appearances noticed by different authors, in the Radesyge of northern Europe, are all occasionally observable in the Cocobae of the West Indian colonies, from which it is clear that varieties have been multiplied without reason, or for any practical purpose, but tending only to complicate and create confusion. Dr. H. had, in no instance, known the Cocobae (Lepra Arabum) to be communicated by the husband to the wife, nor *vice versâ;* so that, notwithstanding the prevalent opinion to the contrary, he had long ago regarded it as void of contagion; yet he was almost induced to think that, under predisposition and other concurring causes, the disease may, in the *ulcerative stage*, be communicated. It seems that *white* persons in the colonies avoid touching a person infected with leprosy; and they generally segregate the lepers on a distant part of the respective plantations.

"Having briefly stated the results of some post-mortem examinations in the disease, Dr. H. proceeded to detail the methods he had found most effective in its cure. When attended to early, the symptoms were easily arrested by the use of saline laxatives, with antimonials, anodynes, diaphoretics, vapour baths, and frictions; bleeding, spare diet, and the several means for promoting *lymphatic absorption*, and all the secretions, especially by perspiration. The advantage of such means, duly persisted in, was evinced in the relief obtained for the patient, and rendered obvious to others by the foul and fœtid miasms evolved, as well as by the exuviæ thus thrown

off from the surface of the body. Cases which had occurred during Dr. H.'s practice in Guiana were adduced as illustrative of the advantages obtained over the disease by calling in the united aid of the various remedies.

"As auxiliaries, opium and the *Coonuparu* (the leaves of a plant of the Euphorbiacea family), were found to afford essential aids, along with the alternate use of warm vapour baths and cold affusions,—means which the author has found to be equally beneficial in divers chronical diseases. Moderate bleeding was often found to augment the strength, and greatly to facilitate the cure; along with the moderate use of tonics, diaphoretics, and iodine. The sensation of lassitude and debility often depends on hypertrophy or congestion. The morbid growths, or fungoid tubercles, in this disease, are nourished by excess of blood; they resemble those of cancer, and by many they have been considered equally incurable.

"The Indians of Guiana resort to fomentations, baths, and to a drink of the bark of a tree called *Mouca*, with the root of a vine, *Paramaroora*—a species of *Cissus*—and the bark of *Waiacano* (guaiacum), the infusion of which is fermented with honey. They use also the bark of the tree '*Tamootu*,' a non-descript. These simple methods of the American natives are likewise of vast efficiency in arresting the most pernicious fevers, dysentery, and a multitude of ailments both acute and chronic."—*Ibid.*

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37. *Kreosote in sea sickness.*—Mr. A. B. Maddock informs the editor of the *Lancet*, that he has given the kreosote as a preventive of sea-sickness, and found it prove almost uniformly successful. Dr. Elliottson has also used the article for the same purpose, and as far as his limited experience went, when he read his paper to the Medico-Chirurgical Society, with advantage. See this Journal, Vol. XVIII., p. 154. It will, indeed, be a valuable discovery, if kreosote shall prove an effectual remedy for the distressing sickness just named.

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38. *Tetanus Neonatorum.*—So little has been done to elucidate the nature or treatment of this disease, that the following observations merit attention as being calculated to establish something positive in place of the vague notions which have hitherto prevailed on the subject. They are taken from a memoir by Dr. Robert Finckh, published in *Hecker's Annalen*, (Vol. III., No. 3.) and are founded on the observation of twenty-five cases, which occurred at the Stuttgard Hospital, between the years 1828 and 1835, during which 848 infants were received into that establishment. Of the above twenty-five cases, thirteen were boys and twelve girls. Most of the cases occurred during the cold season.

Commencement of the Disease.—Tetanus neonatorum generally commences during the first week after birth. Thus, of the twenty-five cases only one began on the second day of the child's existence, while eight cases occurred on the fifth day, and seven on the seventh. The *prodromes* of this disease are so uncertain that we shall notice them but in a very brief manner. The child becomes uneasy; is seized with periodical fits of crying, which present a peculiar character; it takes the breast with avidity, but soon lets it go; the action of sucking is performed with difficulty, or is impossible; the intestinal canal is usually more or less deranged.

Symptoms.—As the disease becomes fully developed, the impossibility of sucking is quite marked; this is a very constant sign, and did not fail once in the twenty-five cases. The infant's face assumes a contracted and anxious appearance; the spasm of the muscles, at first insignificant, intermitting, and confined to the muscles of the jaw, becomes more intense, and extends to the muscles of the neck and back; and the spinal column is firmly fixed, or even bent backwards. In this state the child may lay, apparently tranquil, with the respiration a little accelerated, or it may be seized with violent and repeated convulsions. In this latter case the face becomes tumid, and almost black; the mouth is covered with foam; the arms and legs are bent up; the fingers and toes contracted. The spasmodic attacks occur every half or even quarter of an hour, and are brought on by apparently insignificant causes. After the lapse of twelve to twenty-four hours the infant falls into a state of general collapse, and soon dies in complete exhaustion. This latter period is very often marked by febrile symptoms, with burning heat of the back and head, while the extremities are icy-cold. The state of the umbilical cord is one of the circumstances which demands especial attention. In a great majority of cases a coincidence has existed between the separa-

tion of the cord and the developement of the tetanus: thus the cord was separated fourteen times before the appearance of spasms, nine times during, and only twice after, their commencement.

Duration.—The duration of tetanus neonatorum is generally short. In fifteen cases the disease terminated within two days; one case was protracted to a week, two to five days; indeed it is almost incredible how long the tender constitution of the infant will sometimes resist this dreadful malady; thus, Dr. Elässer saw one single case which did not terminate before the thirty-first day.

Causes.—Dr. Finckh examines them at some length, but we shall only give an analysis of his remarks. It is impossible to refer the disease to any congenital malformation, or weakness of the infant, for all the children were born at the full period, well made, and many of them vigorous. The doctor is inclined to rank, as more immediate causes, the convulsibility of new-born children, and the suppuration or ulceration of the umbilical cord. Amongst occasional causes, the author enumerates atmospheric influence, cold, gastric irritations, mechanical stimuli, and injuries. With respect to the nature of the disease, he considers it to be essentially the same as the traumatic tetanus of adults, and to be produced by a congestive or inflammatory condition of the central nervous system. Tetanus neonatorum is generally considered to be more prevalent in warm climates than in any other; but the observations of Dr. Finckh tend, certainly, to show that any exposure to cold, especially during the cicatrization of the umbilical cord, is apt to determine tetanic symptoms. Thus, children baptised far from home, during a moist, cold season, are often attacked; and, in Germany, physicians have, for a long time, made this interesting remark, that cases of tetanus abound in such districts as are deprived of parish churches, while they are much rarer in towns and villages where the proximity of a church enables parents to have their children readily baptised.

Diagnosis and Prognosis.—The peculiar cry and expression of the face, the trismus, contraction of the limbs and back, and, above all, the coincidence of these symptoms with inflammation or suppuration of the umbilical cord, render the diagnosis of this disease extremely easy. Unfortunately, the prognosis is of a most unfavourable kind. Strong, vigorous children resist somewhat longer than weakly infants, but they all die. This is confirmed by the experience of all writers on this truly terrible disease.

Morbid Appearances.—We shall here repeat, at length, the results of twenty post-mortem observations made by the author. Most of the bodies were examined thirty-six hours after death; several from four to six hours after: and they were all enveloped in linen moistened with vinegar, and placed on the abdomen to prevent the gravitation of the blood.

(*External Appearances.*) The face retained its characteristic appearance of suffering; the muscular system, its rigidity; and the fingers and toes were powerfully contracted. The umbilicus was surrounded by a large circle of a green or bluish-green colour.

(*Spinal Marrow.*) The vertebral canal was opened in every case, and with extreme care. In four cases the spinal marrow and its membranes were free from any alteration. In the remaining sixteen an effusion of blood, in considerable quantity, occupied the whole length of the canal, between the bony walls and the dura mater. This blood was very dark in colour, sometimes fluid, at other times coagulated; in several cases it occupied more particularly a single region, as the cervical or dorsal, for example:—

In nine of the sixteen cases the dura mater and arachnoid were perfectly healthy. The pia mater was evidently inflamed and thickened in nine cases, and in three the portion lining the posterior surface of the spinal marrow, was deeply congested. The substance of the spinal marrow was firm and normal in the nine cases accompanied by inflammation of its membranes; in the seven remaining, an effusion of blood, or of a serous or gelatinous fluid, occupied the vertebral canal.

(*Cranium.*) In only one case were the contents of this cavity found exempt from alteration. In the other cases more or less extravasated blood existed at the surface, or in the interior of the brain. Thus, the effused blood was found:—

5 times on the surface of the brain.

5 —— in the plexus.

3 times in the lateral ventricles.
2 —— under the pericranium.
1 —— at the surface of the cerebellum.
1 —— below the tentorium cerebelli.
1 —— above the tentorium. Here the forceps had been used.

The membranes of the brain were healthy, if we except more or less injection of their vessels. In one case an effusion of gelatinous fluid, instead of blood, was found between the arachnoid and pia mater. The substance of the brain, though commonly a little soft, offered nothing abnormal; in two cases, however, it was very hard, while the cerebellum was in a state of complete softening.

(*Thorax and Abdomen.*) The viscera contained in these cavities, presented nothing worthy of notice. The lungs and heart were commonly quite healthy. On opening the abdomen, the stomach and intestines were also found in a normal state; however, in five cases, some one portion of the intestinal tube was strongly contracted, while the rest was much distended with gas. The umbilical arteries and veins were carefully examined in eleven cases, without any trace of inflammation or other lesion being discovered. The various nerves and their plexus were also healthy.

Treatment.—This was exceedingly varied. In most cases the antiphlogistic method was tried, but all the children died, even when it was employed with vigour from the very outset. The symptoms were alleviated for a short time by lukewarm baths; but whenever blood was abstracted, even locally and in small quantity, they were evidently aggravated. About a dozen cases were treated, ineffectually, with musk, opium, and other antispasmodics. In one case, however, the use of these remedies seemed to protract the disease to the thirty-first day.—*Lancet*, August 12th, 1837.

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39. *On the remedial powers of Turpentine in Nervous Irritation.*—Professor R. J. Graves asserts that turpentine exercises a very remarkable influence over many forms of nervous irritation. In many affections of the nervous system characterized by excitement, he says that he has employed turpentine with the most signal benefit. "Thus," he adds, "we frequently find it a most valuable agent in the treatment of chorea, of epilepsy, and of the convulsive fits of children. We have frequently experienced benefit from its use in the treatment of spasmodic affections of the stomach and bowels; in hysteria, tympanitis, and the subsultus of fever, we often derive from it the most rapid and effectual relief. You recollect a case of typhus which was lately under treatment in our wards, and of which one of the most prominent symptoms was general and continued subsultus; and you have all witnessed how much relief the patient obtained from small doses of oil of turpentine. Hence I was led to conclude that it might be employed with benefit in the latter stages of fever, where vascular excitement is greatly abated, and where the most prominent symptoms are irritation of the nervous centres, with more or less congestion of the gastro-intestinal mucous membrane."—*London Med. Gaz.*, June 17th, 1837.

SURGICAL PATHOLOGY AND OPERATIVE SURGERY.

40. *Toothache from Caries.*—Troschel has followed up some observations made by him last year in a Prussian medical journal, in which he endeavoured to prove that the violent pain which occurs in caries of teeth is not caused by the laying bare of the nerve; and that caries, if unaccompanied by any other ailment, is in most cases free from pain. There are exceptions, however, to this rule which are not uncommon.

We find ordinarily two or more carious teeth together, of which very often one gives great pain, and the others, which are much more injured, and in an apparently worse condition, give no pain. Despite of all palliatives, and all possible attention in the avoidance of cold, the pain often lasts whole weeks, with increasing or decreasing violence; there is congestion and repeated swelling of the face, sleep and appetite are banished, and even the good constitution of the sufferer

begins to be affected. After the tooth, the author of all this suffering, has been drawn, all complaints cease, and the patient soon recovers.

If the extracted tooth be now broken in two, or, what is better, sawed longitudinally through the centre, we find that from the carious part, which is often very distant from the nucleus, there extends a black or brown streak into the cavity of the tooth where the nerve lies. Sometimes this streak is not very distinctly marked, and in this part the substance of the tooth is only a little less white, duller, and more pellucid than the surrounding structure. This change of colour occurs on this account, because that the canals in the substance of the tooth, which lie in layers close one behind another, and pass from the circumference to the centre, are permeated with pus (according to the examinations of Purkinje, Valentin, Gurlt, and Müller;) they are denominated by the last mentioned author, "caniculi chalicophori." In caries of the crown of the tooth, the phosphate of lime which is contained in these canals is absorbed, and during the suppuration the carious matter infiltrates still farther from the base of the abscess into these little pores: then not only the white colour is lost, but the nucleus of the tooth (the nerve of) becomes affected, and this causes the most intolerable pain.

Every dentist of observation has seen those dark streaks which pass to the nerve; the little canals can, however, only be seen under the microscope, and then only on thin sections of the tooth prepared on a grinding stone.

It is only from very acrid applications, and such as for a period paralyze the nerve, that any alleviation is to be obtained from the torture one suffers, and which arises in the manner we have described. Even the application of the actual cautery to the carious hollow has no lasting effects, and the extraction of the tooth remains as the only resource.—*Dublin Medical Journal*, 1837.

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41. *Ligature of the external iliac artery.*—This operation was successfully performed by M. Lisfranc, in May, 1836, for the cure of an aneurism situated about half an inch from the crural arch. A single flat ligature, formed of four threads united, was applied; and the limb afterwards enveloped in warm cloths, frequently renewed, which M. L. prefers to bags of warm sand; the latter impeding the capillary circulation by their weight, and acting as rubefacients when the sand is over heated.—*Bull. Gén. de Thérapeut.*, Aug. 15, 1836.

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42. *Treatment of abrasions.*—In cases of loss of cuticle from external violence, Sir Astley Cooper has found an application of liquor plumb. subacet. with two grains of sulphate of zinc to the ounce, produce new skin in the course of eight hours. He finds it, he says, the best application.—*Lancet*, Oct. 14, 1837.

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43. *Ligature of the Primitive Carotid.*—This operation has been successfully performed by Dr. Bedor, of Troyes, for the cure of traumatic hemorrhage, in a man twenty years of age, resulting from a wound in front of the right axilla. The man was discharged cured on the 45th day.—*La Presse Médicale*, Feb. 4, 1837.

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44. *Ligature of the Arteria Innominata for Aneurism of the Subclavian.*—In our last number we announced the performance of this operation by Mr. Lizars. The following are the details of the case as reported in the Lancet of the 15th of July last.

Alexander Duncan, aged 30, a carter, admitted May 28, 1837. Fifteen months ago he met with a fall, and again another fall, on the elbow, eleven months since, which led, six weeks ago, to the appearance of a small pulsating tumour, above the clavicle, indicating aneurism of the subclavian artery, for which Mr. Lizars determined on tying the arteria innominata. The operator having arrived at the innominata, an aneurism needle was carried round it, from the right side, upwards, towards the trachea; the ligature was seized, and the artery tied. The hemorrhage during the proceeding amounted to about two ounces.

The patient was examined two hours after the operation, and did not present any unfavourable symptoms, excepting some pain in the course of the carotid and brachial arteries, and at about the elbow-joint, which, towards evening, were attended by pain, on inspiration, in the right side of the chest. The pulse was full, and varied from 74 to 78. The pulsation in the tumour was completely suspended by the ligature of the innominata.

June 1st. On the day after the operation the patient felt somewhat easy. The head is free, and a sense of suffocation, which has tormented him during the night, has gone off. He slept in the morning for a couple of hours, and passed the rest of the day without accident. The wound looked well.

3d. The pulsation returned in the tumour, and a small quantity of blood distilled from the wound. The face seemed flushed, and the patient complained of the heat of the weather.

4th. The pulsation in the tumour (which feels quite hard) has disappeared. He has passed three copious evacuations, and is free from uneasiness. Pulse 110, soft.

6th. Patient progressing favourably. No accident has occurred.

June 8th, nine days from the operation. Passed a good night, and feels quite easy; bowels regular; tongue moist, and almost clean; pulse 96, and soft; skin cool and moist; passed about two pounds of urine last night, and the same quantity was drawn off this morning.

9th. Slept well all night, and has no particular complaint. The wound looks well, and has nearly healed; it is discharging thick, healthy pus. Tongue still furred, but moist; pulse 96; skin cool; appetite good. Took a little chicken soup with relish. Does not complain of thirst.

10th. Slept well, and feels quite easy this morning. Still requires to have his urine drawn off in the morning. Pulse 92, soft; tongue very nearly clean; skin cool, appetite good.

11th. Passed a good night, and is in all respects the same as yesterday. Two pounds and a half of urine drawn off.

12th. Did not sleep so well as usual; perspiring a great deal. Complains of slight nausea. Tongue furred; pulse 100. Has had two stools since yesterday.

13th. Passed rather a restless night. Complains much of thirst. Pulse 100; tongue furred, and rather dry; skin cool and moist; bowels regular; still complains of nausea; three pounds of urine were drawn off. Habeat q. pr. *calomel*, three grains.

Vespère.—The calomel has operated three times. Vomited a good deal of bilious-looking stuff. Nausea gone; pulse 110. Feels more comfortable than he did in the morning.

14th. Passed a good night, and has no particular complaint. Tongue much cleaner; skin cool and moist; very little thirst; bowels regular; appetite good. Passed two pounds of urine.

15th. Passed a good night. Feels better than he has done for the last two days. Pulse 96, and soft; tongue almost clean. Takes beef-tea with relish; has had some weak bitter table-beer. The wound has healed, with the exception of a small sinus, which is discharging healthy pus in a moderate quantity, and which, it is presumptive, communicates with the ligature. Bowels regular; skin cool and moist.

16th. Urine still requires to be drawn off every morning. Three pounds of urine were drawn off to day. In all respects the same as yesterday.

Vespère, 7, P. M. On dressing the wound the knot of the ligature was found amongst the pus. (At the operation both ends of the ligature were cut away.)

June 17th, 11, A. M. Passed rather a restless night, and at present complains of slight pain in the right side, and difficulty of breathing, which is much increased on taking a full inspiration; face flushed; pulse 120, full; skin hot and dry; tongue slightly loaded and dry; countenance anxious; great thirst; during the morning has been troubled with nausea and diarrhœa; urine passed naturally this morning. Apply fifteen leeches to the painful part. Three grains of *calomel*, one grain *tartr. of antimony* in an ounce of water. A table-spoonful every hour.

1, P. M. Leeches bled freely, with considerable relief; sinapism to the side.

4, P. M. Pain of side and difficulty of breathing gone; feels much easier in every respect; diarrhœa nearly ceased.

10, P. M. Feels quite easy at present; pulse 120, but soft; diarrhœa gone; skin cooler, and more moist; countenance not so anxious; still complains of thirst.

June 18th. 11, A. M. Passed a quiet night, and slept well: feels quite easy about the chest and side; face less flushed; pulse 116, soft; skin moist; a good deal of thirst and nausea; diarrhœa returned; urine naturally evacuated. Toast and tea for breakfast, with relish. *Efferv. powder* every hour.

6, P. M. Diarrhœa still troublesome; nausea subsided; pulse 112, soft; skin cool and moist. *Anodyne lavement* with fifty drops of *laudanum*. Omit the *tartr. of antimony*.

9, P. M. No motion since last report; feels quite easy; skin dry; pulse 116. *Powder of ipecac.* with *opium*, twelve grains; *extract of opium*, one grain.

June 19th. 7, A. M. Has slept well all night; no return of diarrhœa; awoke this morning at seven with a severe fit of dry coughing, which caused hemorrhage to take place from the wound. It was easily commanded with the finger, until a narrow strip of lint was stuffed into the wound, and a compress placed above it. About eight ounces of blood were lost. Pulse 110, fluttering; countenance anxious; skin dry.

12 o'clock. No return of hemorrhage; tongue furred; pulse 120, strong and irregular. Blood-letting to twenty ounces at once.

℞. *Extract of belladonna* one-sixth of a grain; *aromatic powder*, q. s.; one pill every two hours.

4, P. M. No more hemorrhage; pulse reduced in strength but not in quickness; blood drawn, much cupped and buffed; countenance still anxious; bowels once opened; cough harassing.

℞. *Extract of belladonna*, one-third of a grain; *aromatic powder*, q. s.; a pill every two hours.

℞. *Tincture of digitalis*, ten drops; *tincture of hyoscyamus*, twenty drops; to be taken in a cup of water every second hour.

10, P. M. Slight oozing of blood, which was easily stopped by a little pressure for a few minutes; skin hot and dry.

Dover's powder, ten grains; *opium*, one grain. To be taken at once.

June 20th. Noon. Passed a restless night; no return of hemorrhage; passed his urine voluntarily; bowels open. Took tea and toast for breakfast. Pulse 120, soft. Continue the medicines. Belladonna plaster to the sternum.

6, P. M. Hemorrhage commenced at 5 o'clock, P. M., which was easily commanded by pressure upon the wound, and entirely stopped by the introduction of lint. The quantity of blood lost did not exceed four ounces. Pulse 96, soft; skin cool, but dry. *Dover's powder*, twelve grains; *opium*, gr. jss. at once.

June 21st. 2, A. M. Has taken some tea and toast; slept from 10, P. M., until half past 12; feels perfectly easy; skin cool and moist; pulse 106, soft; hemorrhage again took place at a quarter past 1, A. M.; the external bleeding ceased on inserting an additional piece of lint. The quantity of blood lost at this time would be between two and three ounces, but it was evident that there was *internal hemorrhage*, from the tumefaction of the neck, and occasional spitting of mouthfuls of blood, accompanied with frequent cough, and considerable dyspnœa. The dyspnœa gradually increased until half past 1, A. M., when death closed the scene, on the twenty-first day after the operation.

Inspectio cadaveris.—This had to be done privately and hurriedly, which must account for the brevity of the description. The wound of the neck was extended in every direction, and the thoracic cavity opened, when there appeared about twenty ounces of coagulated blood at the root of the neck and upper part of the right bag of the pleura, the apex of the right lung being pressed down in its cavity by the blood, for there were on this side adhesions throughout the pleura-pulmonalis with the pleura-costalis, of recent formation. The lungs of this side were apoplectic and softened. There were old adhesions on the left side, but the lungs were healthy.

The heart and arteries were healthy, with the exception of the tied point of the arteria innominata, and the aneurismal tumour of the right subclavian. The point of deligation of the arteria anonyma was separated a little in consequence of the bleeding, and there was some coagulated blood extending a very short way into the aortic portion of the innominata, and upwards into the right carotid, but none into the commencement of the subclavian. The vertebral artery, the thyroid, the internal mammary, and the transverse cervical were all pervious without any coagula. The aneurismal tumour was collapsed, and full of coagula, as also was the subclavian beyond it.

In concluding the history of this case we may add, that Professor Lizars is now inclined to believe, that a plan of operation more likely to succeed in a similar case would be first to tie the subclavian just at its origin from the innominata,

and then to tie the carotid about an inch above its origin, with the view of allowing the formation of an internal coagulum.

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45. *Aneurism of slight Subclavian Artery, Ligature internal to the Scalenus Muscle.*—This operation was performed by Mr. G. F. Hayden, Esq., of Dublin. The subject of the case was a woman 57 years of age, of intemperate habits, admitted into the Anglesey hospital, September 7th, 1835. "On examination a large pulsating tumour was observed situated internally to the axilla, parallel to the upper edge of the pectoralis minor, and extending above the clavicle: it is circumscribed, and has pulsation referable to its inferior part. There is considerable tension on the upper portion of the tumour, the size of which can be diminished by pressure. Comparing the clavicle of this side with the opposite one, the former appears somewhat displaced, being pushed upwards. The arm, forearm, and hand were much swollen and œdematus some days since. "Bruit de soufflet" over tumour.

"Results of stethoscopic examination not unfavourable in reference to operation for this disease, declared to be aneurism of subclavian artery extending to the *scalenus*. She now describes the pain as darting through the tumour to the back of the shoulder, and down to the elbow. She also complains of an almost insupportable sense of weight and numbness in the whole extremity, although the swelling of it is inconsiderable.

"From the 7th to the 15th of September, aperients, venesection, and anodynes were employed with only temporary alleviation of her sufferings.

"Consultations were held, at which some of the most eminent practitioners of this city gave their assistance. The operation at the distal side of the artery was mooted; but, ultimately, it was decided, that the subclavian should be tied at the internal side of the scalenus, if that portion of the artery proved sound, and if not, to secure the arteria innominata. The sufferings from the aneurism were, at this time, very severe; anodynes in immense doses had failed to procure even temporary ease.

The *operation* was performed September 15, 1835, at 3 o'clock, P. M., in the following manner:—"Patient placed on the back upon a large table, furnished with mattrass and bolsters; head slightly depressed, and turned to the left side. First incision, commenced nearly at the left sterno-clavicular articulation, traversed the upper margin of sternum and clavicle, terminated beyond the posterior or acromial margin of the sterno-mastoid muscle, through integuments and platysma, including subjacent adipose tissue, of about a quarter of an inch in depth. Second incision commenced about four inches from the sternum, a little to the left of the mesial line of the neck, so as to terminate by falling at right angles on the commencement of the first incision, dividing the parts to the same depth: two sides of a triangle were thus formed, the apex at the sternum. The flap, consisting of integument, platysma, and adipose layer, was raised from apex upwards and outwards; the outline of the sterno-cleido-mastoid was now very distinct, but still covered by the superficial cervical fascia; the latter was carefully divided immediately above the sternum, corresponding to the anterior edge and lower extremity of the sternal portion of the sterno-cleido-mastoid. A director was next introduced beneath this muscle, the fibres of which were divided at about a quarter of an inch from the sternum and clavicle, and precisely parallel to its origin. The muscle was now raised upwards and outwards with the handle of a scalpel; a small vein was here tied. In the next stage of the operation, the sterno-hyoid and sterno-thyroid were divided upon a director. Hemorrhage from a small artery and vein so inundated the part, that it was found necessary to secure them before the operation was proceeded with. After the displacement of some cellular structure with a director, the innominata, carotid, and subclavian were felt; compression of the last mentioned vessel suspended pulsation at the wrist and tumour. The first part of the subclavian was found not involved in the disease, and, consequently, it was decided that this vessel should be tied in preference to the innominata, which had been clearly exposed, and which, from its direction, and being uninterfered with by the clavicle, seemed to offer much less obstacle to the passage of the ligature; this was, at first, attempted with an aneurism needle, made of silver, in order that it might be bent so as to present a degree of concavity to the clavicle, to be determined by the displacement of this

bone, and the depth of the artery. The eyed part of the needle, for about an inch, was made to slide off and on (like the canula of a trocar,) so that when the extremity of the needle was brought around the artery, the eyed portion, with the ligature, might be withdrawn. But when the handle of the instrument was depressed, the upper part slipped from the lower before the latter had passed under the artery. The vessel was subsequently secured with Mr. L'Estrange's* needle.

"This needle, when operating upon the subject, was found to unscrew in attempting to pass it under the artery. Mr. L'Estrange, with that ingenuity for which he is so remarkable, has obviated this objection by adapting a silver canula, which, on being pushed down, prevents the extremity from being unscrewed, and on being drawn up, admits of the separation of the eyed portion from the shaft. The surgeon's knot was made very readily in the usual manner; the middle and internal coats of the artery were felt giving way as the ligature was tightened, the extremities of which, having been brought over the clavicle, the flap was next laid down and retained by two points of suture, pledgets of lint, and adhesive plaster.

"Eight o'clock, P. M.—Immediately after the operation, the pulse in the left wrist was 124, and soft; respiration somewhat oppressed, and became more so since, accompanied with partial loss of voice; difficulty of deglutition; felt an acute pain in the stomach after swallowing any fluid; considerable sense of tension in the neighbourhood of the wound:—tumour, which was considerably diminished, upon the application of the ligature, is now refilled, but, with an absence of pulsation; complains of pain somewhat similar to that experienced before the operation; coldness of the right hand, which was removed by the application of warm flannels."

Two days after the operation the patient was attacked with bronchitis, which was subdued by appropriate treatment; but the patient could not be prevented from frequently moving the affected extremity, and on the tenth day, although positively forbidden, she got out of bed, and walked about the room. Subsequently at 2 o'clock, P. M., she would not suffer the nurse to pass the bed-pan under her, but got out of bed; while in the act of doing so, and rising upon her right hand, placed upon the bed, considerable hemorrhage suddenly occurred. A sponge thrust into the wound arrested the bleeding, but not until nearly a pint of blood had been lost. The hemorrhage did not recur, but the patient gradually sunk, and expired on the twelfth day, retaining her consciousness to the last.

Post-mortem.—"On raising the parts concealing the loop of the ligature some coagulated blood was found in this situation. The surrounding parts were all agglutinated by the effusion of lymph. The subclavian artery, at the site of the ligature, was gaping irregularly for three-fourths of its calibre, the remaining one-fourth sound and retaining the ligature. The right carotid *considerably* enlarged. The aneurism was found to extend to the anterior scalenus muscle, beneath the clavicle, and between the branches of the brachial plexus of nerves.

"Its contents were solid throughout, and laminated. A second aneurism, of the axillary artery, about the size of a large gooseberry, distinct from the former, was situated in the first stage of its course. The innominata was healthy; the arch of the aorta somewhat dilated; heart natural; acute bronchitis of both lungs."

"It is a curious fact," Mr. Hayden remarks, "that so many years (24) should have intervened between the taking up of the subclavian artery internally to the scalenus muscle, an operation first performed by Dr. Colles, Ex-professor of Surgery of the College of Surgeons in Dublin, in October, 1811,† and the preceding case, the particulars of which I have just detailed; the more so, as the artery was subsequently tied, seven months after, in this city, by Mr. O'Reilly, in *Jervis street Infirmary*, and although the patient was young, in rude health, an exceedingly favourable subject, yet he was carried off by secondary hemorrhage supervening on the thirteenth day after the operation. In this case, the ligature had

* This instrument is made of steel; has two eyes close to each other; the one farther from the point carries the ligature; the other receives a small steel hook that fixes the extremity of the needle while the shaft is unscrewed from that portion containing the eyes, which then may be readily drawn around the artery together with the ligature.

† See "Ed. Med. and Surg. Jour." Jan., 1835.

come away; the artery was found fairly divided, and both portions, distal and cardiac, separated two inches, and also patulous, the *cardiac extremity particularly so.* In none of these cases was there such an attempt at the reparative process in the site of the ligature, as to render us sanguine of the result in pursuing this plan of treatment again. In Mr. O'Reilly's case and my own, the disease of the axillary artery would contraindicate the performance of the operation on the distal side of the aneurism. Operations performed upon the subclavian in the outer third have proved successful, although very near the site of the operation internal to the scalenus. Are we to look for the cause of this success in the circumstance of the *impetus of the blood sent from the heart* being taken off by the several branches (viz: vertebral, thyroid-axis, internal mammary, cervicalis profuda, superior intercostal,) which come off from the artery at the cardiac side of the ligature?

"The want of success that has followed a ligature placed upon the A. innominata, would also go to shew that the impetus of the blood has a great share in disturbing the sanative process set up by nature at the site of the ligature. Under these circumstances, I would suggest the propriety of tying both the common carotid and the subclavian at the *same time;* and the steps of the operation necessary for exposing the latter, will be sufficient for laying bare the former also. A coagulum will soon form, which will extend through the portions of subclavian and carotid on the cardiac side of the ligature, and also through the *whole* of the arteria innominata. The carotid, not having any branch near to the distal side of the ligature, would be more secure than the subclavian; but we have seen that coagulation of the blood in the aneurismal tumours was *not* presented by the reflected supply obtained from the branches intermediate between the ligature and the aneurism; and in three cases, the common carotid of that side was open and *considerably* enlarged. Of course, this plan should be aided by the constitutional and local means known to favour coagulation of the blood in the sac of an aneurism. How favourable has been the termination of operations upon the carotid femoral, and external iliac arteries. In each of these cases, the large vessel (subclavian, profuda, or internal iliac respectively) is at such a distance from the ligature as to permit the formation of a *lengthy* coagulum at the *cardiac* side of the ligature. Were I to operate again upon such a case, I would bind the patient's arm so effectually as to prevent, as much as possible, the motion of the affected extremity. The perverseness and obstinacy of my patient, in this respect, were most deplorable, for she would, in despite of all our entreaties and warnings, move about, perfectly reckless of consequences. The disturbance thus produced must have contributed to prevent the reparative process being fairly established. Such patients should, in my opinion, be placed upon Earl's bed, and rest, as absolute as possible of the whole body, enjoined.

"In those cases, the severe and almost intolerable pain endured by the patients (probably owing to the pressure exercised by the aneurism on the brachial plexus of nerves,) renders them anxious to submit to any operation, and, indeed, warrants the surgeon in undertaking what may be esteemed to afford but even a *possible* chance of success. In Moulang's case, the most powerful narcotics had failed to procure even temporary ease. This poor woman frequently declared she would prefer death to lingering out a miserable and painful existence, rendered, each day, more distressing by the aggravation of her sufferings consequent upon the progress of the disease."

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46. *Fatal operation for Cleft Palate.*—A daughter of Lord Lyndhurst, who was taken to Paris for the express purpose, was operated upon last year by M. Roux, for cleft palate. The result is said to have been fatal. We do not find in any of our journals the details of the case.

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47. *Styptic powers of the Aqua Secale cornuti and Binelli.*—In November, 1832, Dr. Müller divided the popliteal artery in two sheep, and then applied a piece of lint to each, moistened, in one case, with the *aq. binelli*, in the other with the *aqua secal. corn.* The hemorrhage was arrested in both cases, after the lapse of about six minutes: a similar result was obtained, after the same arteries were exposed a little higher up, and again divided. The caudal artery of a horse was cut through, and, while bleeding very freely, was submitted to the action of the

above-mentioned substances; the hemorrhage ceased in a few minutes. The anterior crural artery of the same horse, being also divided near its exit from the chest, the bleeding was arrested in eighteen minutes, with lint moistened in the aq. sec. corn.—*Lancet*, from *Klein. Repert.*, Dec. 1836.

OPHTHALMOLOGY.

48. *Ossification of the hyaloid membrane and vitreous humour.*—Dr. GRILLO, Prof. of Anatomy in the University of Naples, exhibited at the meeting of the Medico-Chirurgical Academy of Naples, on the 11th of March last, two eyes, the vitreous humours of both of which were completely ossified. The individual from whom these eyes had been taken was an old sailor, who had been for twenty-five years tormented with gout in his feet. The disease became displaced, and the eyes were affected with obstinate inflammation, followed by opacity of the cornea, atrophy of the eye-balls, complete blindness, and the gradual conversion of the eyes into two white hard balls. Finally the patient died of apoplexy. The ossification of the vitreous humour is exceedingly rare, this degeneration being usually confined to the hyaloid membrane. Dr. G. met with this last named pathological condition in the eye of a subject dead from phthisis. Several cases of ossification of the hyaloid membrane are recorded by Wardrop.—*Osservatore Medico di Napoli.*

49. *Treatment of Cataract without an operation.*—During the years 1834 and 5, twelve patients, with confirmed cataract, were treated at the Hotel Dieu, by revulsives, external and internal, and the other medicines recommended for the cure of cataract. This treatment was persevered in for four, five, six and eight months, and in two cases for eleven months, without any benefit. Dr. CAFFÉ, however, states, that physiology as well as some cases of disease which he has witnessed, leads him to believe in the possibility of sometimes arresting the progress of forming cataract, and even causing them to retrogade, in persons in early life, and in good health.—*La Presse Médicale*, May 27, 1837.

MIDWIFERY.

50. *On spontaneous evolution of the Fœtus during Labour.* By M. VELPEAU.—The value and the mechanism of spontaneous evolutions are, it seems to me, sufficiently unknown to make the observations which have been addressed to me since the publication of the second edition of my *Traité d'Accouchement*, interesting to your readers. It is a proof that this phenomenon is less rare than is generally conceived, that to the three cases here transmitted to you, two more may be added, which M. Bleynie has communicated to the *Gazette Médicale*. First, let me state, in a few words, what must be understood by *Spontaneous Evolution of the Fœtus*. We may admit, I think, two kinds of it; one comprehending all the cases in which the fœtus really changes its position, which deserve the name of spontaneous version rather than that of evolution; the other relating to the cases in which a part at first far removed becomes engaged in the pelvic strait, without displacing that which was there before.

In the first species of evolution, almost the only one of which there is a clear notion in France, the fœtus completely changes its place. Sometimes it is the head which rises, while the buttocks descend; sometimes, on the contrary, the buttocks leave the neighbourhood of the strait, and the head becomes engaged in it. Two varieties may consequently be established under this species, one for the head, the other for the pelvis; and we might describe separately the spontaneous cephalic version, and then the pelvic, if their details had been better studied. One of M. Bleynie's observations belong to the first of these varieties.

In this case the spontaneous version of the fœtus is easily explained. The head of the fœtus being the most solid and voluminous, and most regularly rounded part, and consequently the most easily sliding, naturally tends towards one of the two ends of the great diameter of the uterus, and usually towards the cavity

of the pelvis. If, under the influence of any cause, it has taken another position, it is very simple, that, pressed by the organ containing it, it should gradually and without much difficulty regain the place which it occupies in the normal condition of parts. When the uterus contracts, if the fœtal ovoid be well situated, it is compressed equally every where; but if, on the contrary, it deviates from the best position, its extremities bear almost the whole effort of the contractions, and unless the shoulder, which on its part projects sufficiently to be stopped at the strait, be forced into it, the head or the pelvis almost always will be.

In evolution, properly so called, two very distinct varieties are also found; one for the head, the other for the pelvis.

In the first, the head, at first far distant from the pelvic rim, descends at last into it, without the part previously engaged in it rising or being sensibly displaced. The cases published are sufficiently authentic to authorize me to admit this as a distinct variety. After having seen the shoulder or the top of the sternum filling the hollow of the pelvis, and arriving even at the vulva, practitioners have been able to convince themselves that traction exercised on the fœtus, or the violent efforts of the woman, were capable of causing the advance of the head, and that then this part gradually gets clear of the pelvis, descending from neck to vertex, without the chest quitting the hollow of the pelvis.

The second variety of spontaneous evolution, which is the most frequent and remarkable of all, is that where the shoulder, fixed in the excavation, or even at the vulva, does not prevent the fœtus from passing out by the pelvis. It is this variety which has of late occupied special attention, having been confounded with spontaneous version.

The attentive observation of what passes in such cases, and experiments on the dead body, prove that—1st, the shoulder begins by descending to the vulva, till the side of the neck and the upper surface of the clavicle or acromion take a fixed point of support on one of the sides of the inferior strait; 2nd, the nucha, or the anterior part of the neck, with the top of the chest, may do the same when the arms have passed out either before or behind; 3d, the contractions of the uterus, and of the muscles, then acting on the pelvis, which is the most elevated, and the only moveable part, without permitting the head to rise, force the chest to bend, and becoming flattened, to descend, and present itself at the inferior aperture, and then at the vulva; 4th, the fœtus, once doubled, the abdomen, pushed on in the same manner, arrives in the hollow, and then at the vulva, while the thorax continues to unbend and straighten itself externally; 5th, the buttocks following the movement, in their turn become engaged in the pelvic cavity, resting on one of the ischiatic notches, and passing from above downwards, by a kind of rocking motion, into the inferior strait and to the vulva, after having distended and violently compressed the edge or side of the perineum opposite to that which serves or has served as the fixed point to the shoulder or neck.

To comprehend this mechanism, it is sufficient to imagine an elastic and flexible rod or spring, one of whose extremities is fixed on one of the sides of the hollow or straits of the pelvis, while the other extremity is forcibly acted on. Thus fixed and rendered immoveable at one end, this rod will bend under the power supported by the other, and will present its convex portion at the vulva, till it can unbend there entirely. The trunk of the fœtus and the flexible spine just resemble such a rod. The head and shoulder form the fixed extremity, and the pelvis, and then one of the haunches, the extremity which has to support the power, while the intermediate portions unbend and disengage themselves at the vulva.

Case I. (communicated by M. Capuron.)—"In April, 1837, Professor Velpeau was called in the night to the village of Bievre, near Paris, to terminate an accouchement. He begged me to go for him, being unable to absent himself from his duties at La Charité, and I left Paris at two in the morning, and was three hours on the road. On my arrival I found that the woman had been delivered an hour since. The *sage femme* and two physicians, who had passed the night with her, told me that the labour lasted two days; that after the rupture of the membranes, which had occurred in the evening, the arm of the child had passed out of the vulva; that they had not dared to return this limb into the uterus, nor turn the child, and that at nine at night an accoucheur had been called from Paris. They added, that towards five in the morning the woman had

uttered some cries and made some efforts, and that on going to her, they found the child entirely out of the vulva, except the head, which was still retained between the labia, which offered, however, no resistance. The labour had therefore been terminated of itself, or by *spontaneous evolution*, to use the expression of Denman. The placenta followed immediately after. The woman was in bed, and did not appear distressed. I was shewn the child, which was of more than the usual length and size. The arm, the top of the shoulder, the scapula, clavicle, and corresponding side of the neck and chest, were red, blackish, and deprived of epidermis. I know not what were the consequences of the labour to the mother."

Case II. (communicated by M. Capuron.)—"In 1835, a distinguished accoucheur in Paris boasted at a sitting of the Academy, that he had never met with an insurmountable obstacle to delivery, when the arm of the child had passed out prematurely. A short time after, an occasion presented itself of judging what foundation there was for such a declaration.

I was sent for to the Place Maubert, to a strong and vigorous woman, who had been two days in labour. I found there a *sage femme* and three accoucheurs. It was six in the morning; the right arm of the child was at the vulva, swollen, but not redder than natural. The *sage femme* confessed that she had made some traction on the limb, and two of the accoucheurs told me that they had endeavoured by turns, but in vain, to turn the child, so as to extract it by the feet. On touching the woman I found that the vulva and vagina were swollen, dry, and of rather an elevated temperature; that the external orifice of the uterus, soft, and surrounding the protruded arm, offered but little resistance, but that the internal orifice was strongly contracted, as was also the whole body of the uterus, where hard walls could be felt in the hypogastrium. The pains had ceased. After having examined the state of the uterus and the situation of the child, I called in the advice and assistance of the accoucheur above-mentioned, and he soon arrived. Immediately on his arrival he set about to terminate the labour, and made great efforts to seize the feet, but was unable to effect his object. He made four successive attempts, but all in vain; the resistance of the uterus was insurmountable, and he had sat down to take breath again, when suddenly a gurgling was heard in the abdomen of the woman, followed by the fall of the child and of the membranes on the floor. The uterus had been so weakened, that it had no longer the power of retaining the products of conception, or of counterbalancing their weight. Some seconds later, the hand of the accoucheur, placed only at the entry of the vulva, might have received the child and its appendages, and he would have had the appearance of having terminated the labour, which was completed spontaneously. The child was in this case dead, and the mother expired a short time after."

Case III. (communicated by M. Capuron.)—"In 1815 I was called to a woman in child-bed, near the Sorbonne, where I found two accoucheurs and a *sage femme*. The child presented the right arm, which was gangrenous, livid, and partly stripped of its epidermis; the top of the shoulder, the scapula, and clavicle, protruded from the vulva, and presented the same colour as the arm. The mother was weakened almost to death, both from the long labour, and on account of the manipulations to which she had been subjected, to relieve her.

After having given the most unfavourable prognosis on the condition of both the mother and the child, I placed the former in a convenient situation, and endeavoured to terminate the labour. I expected to find numerous difficulties; but what was my surprise when I felt that the shoulder and arm of the child, which were outside the vulva, re-entered the pelvis, and passed up into the uterus, without any resistance. I then seized the feet and turned the child, which was dead, and beginning to be decomposed. One hour after the mother was no more."

I may add, says M. Velpeau, to what M. Capuron has here said, that some contractions of the uterus might easily have effected what the hand of the accoucheur did here, and transformed this turning into a true evolution.

Case IV.—This observation was addressed to me in October, 1835, by M. Giraudet, a very distinguished physician at Cusset:—

"I formerly followed your course with much zeal and assiduity; but I have been witness of a fact which I think escaped your knowledge. A professional brother, tired of being unable to terminate a labour in which the arm had presented, sent

for me. I went, and found that he had left, not wishing, as he said, to be witness of the death of the mother and the child. I endeavoured to turn; it was impossible, or at least after many trials I failed. A little *sage femme* came, with a small and delicate hand, but she had the same difficulties. Both fatigued, we left the patient, almost dying, to take some nourishment. Half an hour after, we returned; she had been delivered alone of a fine boy, who was dead."

It is true that this kind of evolution is almost always accompanied by the death of the fœtus, and that the cadaveric softness and the flexibility which follow the cessation of life in all the organs, favour it considerably; but we should be wrong in considering that the death of the child is always the prelude, and not the effect, of the occurrence. The sanguineous tumour, pointed out by some authors, on the part which becomes first engaged, demonstrates clearly, in fact, that the children of whom they speak have still lived a long time after the descent of the chest into the strait.

Perhaps these facts may induce some changes in the practice in accouchements, when there is a presentation of the arm. In fact, when turning presents extreme difficulties, I think that it would be better to take care of the mother at the expense of the fœtus, than of the fœtus at the expense of the mother. On this subject I will put the following alternative: either it is actually impossible to overcome the constriction of the different points of the uterus, (and in this case it is not conceivable that the child should be still living, or can be brought away alive,) or the life of the fœtus is maintained, and here a successful turning may be possible without mutilation. In the first case, is the amputation of the arm to be had recourse to? I think not. The fœtus, being dead, should be extracted with as little risk as possible to the woman. I should wish in consequence, after such a decision, that turning should be given up to try evolution. Traction on the arm, after the manner of Fabricius de Hildanus, or Fichet de Flechy, a band passed over the trunk, as Peu advises, blunt hooks applied on the top of the chest, or the fingers themselves, should be successively tried to effect the descent of the abdomen and buttocks, or even of the head, if it shewed the least tendency to move on. —*La Presse Médicale.*

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51. *Extra-uterine pregnancy occurring twice in the same woman, and each time terminating favourably and in the same manner.*—The examples of extra-uterine fœtation on record, are very numerous, but we do not remember one exactly similar to the following, communicated by Dr. Galliay, to the *Journ. des Connaiss. Med. Chirurg.*, and published in the number of that journal for June, 1837.

The subject of this case was a young woman, in perfect health, of middle size, and very good constitution, who shortly after her marriage to a schoolmaster, had a quarrel with another female, who threw her violently on the ground, and ill-treated her in the most brutal manner. The moral and physical suffering of the patient gave rise to an illness of several days, which, however, subsided without any grave accident.

The abdomen now gradually enlarged, and the young woman thought herself pregnant; the pregnancy seemed to run its course in the usual manner; and after the lapse of nine months several of the phenomena of labour set in, but without any result; the pains soon disappeared, but the abdomen remained developed.

Several months elapsed without any change, and the patient, as well as her friends, commenced to doubt of the reality of the pregnancy. At this period the husband was removed to another parish, and the author of the case lost sight of his patient. After some time the woman was suddenly seized with violent pains in the abdomen, of a peculiar kind. A physician was sent for, but ignorant of the cause of the disease, he ordered some general remedies, such as the warm bath, &c., which produced a momentary calm. The pains, however, soon returned, at shorter intervals, and with greater violence at each access. Several medical men were called in, in succession, without any benefit to the patient, and without discovering the real cause of her sufferings. The latter at length became so insupportable, that a consultation of seven medical men (the author included,) was held. The abdomen was now as large as that of a woman in her ninth month: it was tense, and so resisting in every point, that it was impossible to offer any conjecture on what the cause of the tumefaction might be. The whole surface of the abdomen was painful to the touch, particularly about the

groins. The sexual organs, examined by the touch, presented nothing abnormal. The pulse was hard, face highly coloured, and the pains excessively acute.

In this state of things, a general antiphlogistic treatment was resolved upon, leaving to nature to clear up the diagnosis. One of the physicians present spoke, it is true, of an extra-uterine pregnancy, but the state of the abdomen rendered it impossible to pronounce in any thing like a positive manner. The consultation, therefore, broke up, little satisfied with what it had done, but full of hope. After the lapse of some time, the pains set in with redoubled violence, and the patient felt an imperious desire to go to stool, which she was unable to satisfy. A surgeon, sent for, found a foreign body engaged in the sphincter ani, extracted it, and discovered one of the bones of a fœtus: several other bones were discharged in the same manner, and the woman experienced great relief. For several months, she continued to discharge fragments of bone per anus; and at length, in the year 1829, recovered perfect health. The physicians had strongly recommended the patient to abstain from all participation in the pleasures of marriage; a counsel which, it appears, she followed, up to 1834, when, after a copious loss of blood from the uterus, the catamenia became suspended, and the abdomen swelled. As the tumefaction increased day after day, the patient got alarmed; but an accoucheur, who carefully examined the vagina and uterus, assured her she was not pregnant. At about the fifth month the movements of an infant were clearly perceptible, and put an end to all doubt; but the internal genital organs, again explored, seemed to have undergone no change. The movements soon ceased; and, in a few weeks after, fragments of a fœtus were discharged, as before, through the anus; but on this occasion, fortunately, without any pain. Only a portion of the fœtus was thus eliminated; the abdomen, however, gradually subsided, and the woman now enjoys a perfect state of health.

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52. *Case of Arm Presentation, with Remarks.* By Edward Rigby, M. D., Nov. 13th, 1835.—Elizabeth Bloore, æt. 35, mother of seven children. I was sent for by the midwife, on account of a presentation of the elbow. On examining, I found the elbow not very far advanced; os uteri well dilated; membranes ruptured; passages cool; scarcely any pains; rectum and bladder empty. I passed up my hand towards the shoulder, which was to the left side, and, feeling for the scapula, ascertained which was the posterior surface of the thorax. I passed my hand along its anterior surface, and soon reached a foot, which I brought down, and shortly after the other also. As the pains were very slow, I gave her a dose of ergot; they increased. The expulsion was carried on very slowly, and a movement of the limbs of the child evidently showed that it was alive. The arms came down with the breast, and I could soon reach the chin, which I gradually brought down to the perineum, pressing, with two fingers of my left hand, against the superior maxillary bone. It required some time and exertion before the head passed over the perineum. Having previously felt but little pulsation in the umbilical cord, I had pressed it towards the left sacro-iliac synchondrosis. On being born, the child (which was full-sized) gave a convulsive gap; and having poured some spirit on the scrobiculus cordis, and excited two or three more grasps, I tied the cord, placed it in a warm-bath, and inflated the lungs. In the course of twenty minutes the respiration gradually increased; at length it suddenly opened its eyes and cried, to the great delight of the bystanders. The placenta came away easily, and the mother did well.

Every thing had been done by the judicious midwife who attended her, to render turning as easy and favourable as possible. She had sent for me the instant the nature of the presentation was evident. The rectum and bladder had been emptied, and the patient kept as still as possible. The elbow had advanced but little; I passed my hand along the anterior surface of the child, because in this direction there is not only more room, but also the best chance of coming quickly to the feet. I made a point of bringing down both feet, as by doing so the child enters the brim more readily, whereas when merely one foot is taken hold of, the pelvis descends unequally, and the other ischium is apt to lodge against the brim. This latter mode has been recommended by some, on the plea that by having one leg turned upon the abdomen, the presentation not only resembles more nearly that of the nates, which is well known to be more favourable for the child, but also the cord is thus defended from injurious pressure. I adopted this

view myself for some time, but abandoned it from the degree of resistance which the pelvis of the child experienced in entering the brim, and I may state decidedly that I have turned with more ease and success since I have made a point of bringing down both feet wherever it was possible. This practice has also been confirmed by the highest continental authorities. In order to give the child the best chance of being born alive, I determined that the expulsion (now that the position was become a natural one) should be effected as much as possible by the natural powers: as the pains were very sluggish, the ergot was administered, and with the desired effect. As the child gradually descended with the contractions of the uterus, the head was by this means kept with the chin pressed upon the breast, and the arms thus prevented from slipping above it. The head, therefore, descended in the most favourable position into the pelvis, and experienced so little delay in its passage, that the cord was exposed to no serious degree of pressure. To the more experienced of my readers these minutiæ will probably seem unnecessary, but to the junior members of our profession I trust they will not be altogether void of interest.

It has been observed by Professor Naegelé, of Heidelberg, that in many cases where the arm or shoulder has presented, the patient had frequently suffered from severe cramp-like pains in the abdomen during the last few weeks before labour, in which the uterus had sympathised, and had thus been affected with partial and spasmodic contractions; by this means the fundus had been pulled down unequally to one side, and the position of the child altered,—the long axis of its body no longer corresponding to the axis of the brim.

This is not the common obliquity of the uterus, once so much talked of as being a frequent cause of malposition of the child, and which has been long since proved to have no effect whatever in producing it. In the above case I therefore inquired into the state of the patient's health before labour, and found that "for the last two months she had been troubled with cramps all over her belly, particularly the sides and hips,—so much, that she had great difficulty in lying down." My excellent friend, to whom I am indebted for this curious fact, informed me that he was first induced to notice it in the case of a patient, who had been pregnant five times, and in each labour the child presented with the arm or shoulder. Being requested to attend her in her sixth confinement, and struck with the peculiarity of her former labours, he carefully investigated the history of each, and found that the only unusual symptom which he could detect was the severe attacks of spasmodic pain in the abdomen, which came on during the last weeks of pregnancy. Having endeavoured in vain to check them this time by opiate and antispasmodic remedies, he ordered a starch enema with a small quantity of tinct. opii every night: the attacks were effectually stopped; the child for the first time presented right, and was born alive. The fact is interesting, and deserves notice.

In almost every case to which I have been summoned, where turning has been necessary on account of malposition of the child, I have made a point of ascertaining whether the patient had suffered in this manner shortly before labour, and in many instances have found it to be the case.—*Lond. Med. Gaz.*

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53. *Rupture of the cæcum during labour.*—The subject of this case was a woman with her first child, who had enjoyed good health during the whole period of pregnancy and a favourable accouchement. The mother and husband, however, of the patient insisted that they heard at the moment when the child was expelled, a peculiar noise. During the first twenty-four hours no unfavourable symptoms presented themselves; the patient complaining only of griping, and a slight pain in the vicinity of the right groin. Fever, vomiting, acute pain in the abdomen, &c., then came on, and the patient died 72 hours after delivery.

On post-mortem examination a transverse rent, two inches in extent, was found in the cæcum, through which a considerable quantity of fœcal matters were effused into the peritoneal cavity.—*Rev. Méd.*, Nov. 1836, from *Preussische Med. Zeit.*

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54. *Prevention of abortion.*—Among the causes which have been indicated as productive of abortion, Dr. Streit insists that there is one, the influence of which

has not been duly appreciated: this is the pressure exercised on the uterus, by the bladder and rectum, when these organs are distended. Many women have the bad habit of retaining their urine as long as possible, and physicians should point out to them the dangers of it. Towards the third month, most pregnant women become costive, and the fear of inducing abortion prevents their having recourse to laxatives: most of these women are condemned to a horizontal position, prevented taking exercise, &c. Now, it is readily conceivable that if the rectum is distended by fœcal matters, it will prevent the uterus rising from the pelvis, and will compress and incommode it. Moreover, when the patient experiences the want of going to stool, she is compelled to make continued and violent efforts, which are very apt to induce abortion. Dr. Streit advises to avoid this evil, that an enema of oil and water should be administered every other day to pregnant women, who are subject to abortion; commencing a month before the period at which abortion is likely to occur. Several cases are given in which these views have been acted on, with success.—*Siebold's Journal.*

55. *A Report of thirty-four cases of Puerperal Convulsions.*—By ROBERT LEE, M.D., &c.

CASE I. ——, æt. 22; first pregnancy; ninth month; unmarried. Edinburgh, 1816.—Numerous violent fits of convulsion at short intervals, without a return of consciousness, for twelve hours. Orifice of uterus soft and dilatable; but no sign of labour. The pulse was rapid and feeble. The fits continuing, with coma, the child was turned without difficulty and delivered. Death in six hours. Blood-vessels of brain distended. No other morbid appearance observed.—V. S. ad ℥l.; head shaved; cold lotion; calomel; enemata; artificial delivery.

CASE II. ——, æt. 26; first pregnancy; ninth month. 12th July, 1823.—Fifty hours in labour. Head of child low in the pelvis. Vagina and perineum rigid; pulse full and strong; face flushed; occasional incoherence and slight convulsive tremors of the face and extremities. Venesection, followed by two severe fits of convulsion and insensibility. Unsuccessful attempts to deliver with the long forceps. Craniotomy. No fit after delivery. Consciousness soon returned. Uterine inflammation. V. S. ℥xviii. Cathartics. Cured.

CASE III.—Mrs. L——, æt. about 26. January 22, 1827. First pregnancy; seventh month.—Eight weeks before delivery suddenly seized with coma, from which she recovered after copious V. S., &c. Headache, giddiness, and partial loss of speech, but consciousness and memory have remained. Slight hemiplegia of the right side. Pulse 90. Went to the full period; labour natural. In a few hours, convulsions, coma, dilated pupils; retention of urine; and she died on the 29th. Upper surfaces of both hemispheres partially coated with a thick firm layer of lymph. Softening of the brain below. The veins distended with firm coagula. Ventricles filled with serum. The ventricles did not collapse after the fluid had flowed out. Copious V.S. and cupping, head shaved, cold lotions, and blisters; Cathartics; low diet.

CASE IV. ——, æt. 20; 1827. First pregnancy; seven and a half months; unmarried.—Had attacks of epilepsy for several years during early life. Headache, drowsiness, loss of memory; paralysis of right inferior extremity after a slight fit of convulsion and coma. Labour natural; child alive. No return of symptoms after delivery. V.S.; cupping; head shaved; cathartics; low diet. Cured.

CASE V. ——, æt. 24, 21st June, 1828; third or fourth pregnancy; seven and a half months.—Subject to epilepsy in early life. After suffering for several days from an uneasy sensation of weight in the head and giddiness, was suddenly attacked with convulsions, of which she has had several fits, and has little or no consciousness in the short intervals. Os uteri closed. No symptom of labour. 2nd June: no fit, but considerable stupor continues. Pulse 80; copious alvine evacuations. 24th: no return of convulsions; and she went to the full period, and was safely delivered of a living child. V.S. ℥xx.; head shaved; lotions; enemata; cathartics; V.S. ℥xii.; low diet. Cured.

CASE VI. ——, æt. 18, 24th Jan., 1829; first pregnancy; 9th month.—Delivered at 11 A.M.; labour natural. The expulsion of the placenta was soon followed by a strong fit of convulsion. V.S. was immediately employed. At 4, P.M., frequent severe fits, without any intervals of consciousness; V.S. repeated. At 8, P.M., the

fits and stupor continued, when forty drops of laudanum were prescribed in my absence.

25th.—Fits continue; twenty drops of laudanum, and sinapisms to the legs, were then ordered by her medical attendant.

26th.—Several fits of convulsion in the course of the night. Has taken sixty drops of laudanum at three doses, which appeared to calm the violent agitation after the paroxysms.

27th, 10 A.M.—Severe and frequent fits during the night; breathing stertorous; pulse rapid and feeble.

Died on the 28th.

I examined the brain, but except a slight turgescence of the blood-vessels of the pia mater, no morbid appearance was observed.

V.S. ℥xxxv.; V.S. ℥xvj. Head shaved; enemata; calomel; ol. ricini; tinct. opii; sinapisms, &c.

Case VII.—Mrs. ——, æt. 24, first pregnancy; ninth month, unmarried. 1828. A weak, delicate woman; had several fits of convulsion in the first stage of labour, in consequence of which she was severely bruised in differents parts of the body. She was completely insensible in the intervals. The pains ceased, and the os uteri being only partially dilated, and the head of the child being too high in the pelvis for the forceps, the delivery was completed by craniotomy. The fits soon after ceased. V.S. ℥xxv.; do. ℥xij. Cured.

Case VIII.—Mrs. H., æt. 24, first pregnancy; ninth month. Sept. 16th, 1828. Constipation and headache for several days; severe fits of convulsion; insensible in the intervals. Pupils dilated; pulse 80, full and strong; face flushed; os uteri slightly dilated; feeble irregular uterine pains. After venesection and free evacuation of the bowels the fits ceased, and she was delivered the next day, without assistance, of a living child; but it died in 30 hours with convulsions. V.S. ℥xxxv.; hirudines; head shaved; calomel; enemata. Cured.

Case IX.—Mrs. W., æt. 33, second pregnancy; ninth month. Oct. 6th, 1828. Had convulsions during her former labour. Headache, giddiness, and drowsiness, during the latter months of pregnancy. Venesection recommended, but not employed. In the first stage of labour, during the night, several severe fits at short intervals; muscles of the left side most affected; face flushed; pupils dilated; pulse rapid, feeble, irregular; os uteri widely dilated; head pressing through the brim of the pelvis.

7th.—Child born alive this morning without artificial assistance. The fits soon after ceased, and consciousness partially returned. Left side slightly paralysed; pupils dilated.

11th.—No return of fits, and the paralysis is gradually disappearing. From this period she recovered the use of the arm and leg.

On the 4th of January, 1829, she died in a fit of convulsion, with which she was seized soon after taking an emetic, without advice.

Serum was found in the ventricles of the brain. A portion of the upper part of the right hemisphere was in a state of complete ramollissement. Both the cortical and medullary parts of the brain were changed into a thin substance like custard. There were tubercles in the lungs.

V.S. ℥xx.; cupping, ℥xij.; calomel, &c.; head shaved.

Case X.—Mrs. P., æt. about 25; eighth month. Jan. 27th, 1828. After a violent quarrel with her husband, who came home intoxicated, complained of headache and general indisposition. At 7, A.M., seized with strong convulsions, of which she has had several paroxyms. 11, A.M., insensible; tongue lacerated; a bloody foam issues from the mouth; fits continue, with short intervals, when the muscles are affected with spasm. Pulse slow, full, and strong; os uteri dilated; head of child low in the pelvis. During the continuance of the fits the child was expelled without artificial assistance, at 8, P.M. Afterwards had puerperal mania. V.S. ℥x.; V.S. ℥xxvj. Head shaved; stimulating enema; cupping ℥xij.; do. ℥xij. Cured.

Case XI.—Mrs. B., æt. 30; ninth month. April 15th, 1829. Headache, vertigo, great depression of spirits, during the seventh and eighth months of pregnancy. Convulsions: hemiplegia of left side took place seventeen days before labour. Labour natural. Died comatose three days afterwards.

Serum in the ventricles of the brain. A small scrofulous tumour adhering to

the basilar artery. A portion of the right anterior lobe of the cerebrum softened, and of a yellow colour.

V.S. ℥xvj.; cupping, ℥xvj.; do. ℥xij.; head shaved; lotions, blisters, cathartics, &c.

Case XII. ——, æt. 30; fourth or fifth pregnancy; ninth month. 1829. Violent convulsions, and insensibility in the intervals, for twenty-four hours, without any sign of labor. After repeated copious venesection, &c., and the fits continuing with undiminished violence, Mr. Stone agreed with me in the propriety of artificial delivery, which I immediately performed by turning the child. Considerable time and force were required to dilate the orifice of the uterus, which grasped the neck of the child so firmly after the body and extremities were delivered, that great force was required to extract the head. The fits ceased as soon as the delivery was completed, and she soon recovered. V.S. from ℥l. to ℥lx.; cupping; enemata; calomel; artificial delivery; ice in a bladder to the shaved head.

Case XIII. ——, æt. 20; first pregnancy; eighth month, 1829. Delicate and hysterical; headache and giddiness for several days. From twenty to thirty severe fits of convulsion during fifteen hours; insensible in the intervals; pulse 80; face flushed; bowels costive. Labour came on twenty-four hours after the first attack, and a dead child was soon expelled. No fit after delivery. Consciousness did not return for several days. Uterine and crural phlebitis followed. V.S. ℥xij.; V.S. ℥xx.; head shaved; ice to the scalp; calomel; enemata. Cured.

Case XIV. ——, middle age; first child; near the full period. March 23d, 1829. Labour commenced four hours before the first fit, which was long and severe. Complained of headache and giddiness for several weeks before. Os uteri fully dilated at 10, P.M.; about the half of the head in the cavity of the pelvis. The pains completely ceased, after the convulsions occurred, till 1, A.M., of the following morning, when they returned, and at 2 o'clock a dead child was expelled.

26th.—Partially conscious; no fits. Attacked on the 27th with uterine inflammation, and died in three days.

Body not allowed to be inspected.

V.S. ℥xxx.; leeches, xij.; head shaved; lotions, enemata, blisters, &c.

Case XV. ——, a young woman; first pregnancy; ninth month. Sept., 1829. Had frequent and violent fits of convulsion soon after the commencement of labour. Four pints of blood had been drawn from the temporal artery by her medical attendant before I saw her. Os uteri slightly open; no pains. Convulsions continued five hours, when a dead child was expelled. No fit after delivery; but she continued comatose, and died soon after. Copious V.S.; head shaved; enemata; calomel.

Case XVI. ——, æt. 25; first pregnancy; ninth month. April 8th, 1830. Hysteria at the age of 15. At the end of the ninth month frequent fits of convulsion in the course of twelve hours. Consciousness returned after venesection. Severe headache, and occasional spasms of the face and extremities. Labour natural. Uncertain if the child was alive. V.S. ℥xxx.; calomel, gr. x.; enemata; cathartics; cold to the shaved head. Cured.

Case XVII. ——, æt. about 20; first pregnancy; ninth month; admitted into the St. James's Infirmary, Jan. 1, 1831. Incoherence, followed by convulsions towards the end of the first stage of a protracted labour. Labour pains strong and regular, and the greater part of the head in the cavity of the pelvis. The fits were relieved after venesection, and she was delivered in a few hours of a dead child, without help. V.S. ℥xviij. V.S. ℥x. Cured.

Case XVIII. ——, æt. 30. May 9th, 1832. Had epilepsy when a child. Labour began at 8, A.M., 7th May. Membranes ruptured in the night; os uteri dilated to the size of a crown on the morning of the 8th. Pains feeble; complained of headache; pulse full and slow. Venesection; enema. Labour continued till the morning of the 9th, when severe convulsion fits supervened. Venesection repeated. Fits and unconsciousness continued for several hours, and the pains went entirely off. The head being still high up in the pelvis, and the os uteri rigid and undilated, craniotomy was performed. No fit after delivery. V.S. ℥xvj.; enema; cath.; V.S. ℥xxv.; head shaved; cold lotions; enema; craniotomy. Cured.

Case XIX.—Mrs. B., æt. 30; first pregnancy; ninth month. Autumn, 1831. Six hours in labour, under the care of Mr. Girdwood, of Paddington. At the end of the first stage of a labour, incoherence, stupor, and several slight fits of convulsion. The symptoms were immediately relieved by venesection, the pains continued, and a living child was soon expelled. V.S. ℥xxxvj. Cured.

Case XX. ——, age not ascertained; patient in St. Marylebone Infirmary. December, 1831. Had a number of severe fits of convulsion soon after the commencement of labour. No relief was obtained from venesection; and the pains having entirely ceased for many hours, and the head of the child being above the brim of the pelvis, and the os uteri only partially dilated, craniotomy was performed. Only one slight fit occurred after delivery, and consciousness returned gradually. Copious V.S. Cured.

Case XXI. ——, middle age, Ootober, 1833, first pregnancy. Had been long in labour, when convulsions came on, without any complaint of headache. A feeble child, born alive. Convulsions ceased immediately after delivery. V.S. ℥xxx. Cured.

Case XXII. ——, æt. 20, 30th December; first pregnancy; unmarried. Was called to see a patient, æt. 20, in an adjoining parochial infirmary, who had been attacked with furious fits of convulsion sixteen hours after the commencement of labour. Os uteri fully dilated; head of child jammed in the brim of the pelvis. An ear could not be felt. Fits continued still more frequent and violent after V.S. Pulse rapid and feeble. Labour pains have entirely ceased. Head perforated, and great force required to draw it through the pelvis. No fit after delivery. Sensibility returned the day after. V.S. ℥xxx. Craniotomy. Cured.

Case XXIII. —— Kirby, æt. 30, St. Marylebone Infirmary, May 23, 1834. Second child. Pelvis distorted by rickets. Delivered by craniotomy two years before, after a tedious labour. Two strong fits of convulsions took place on the 23d May, when she had been six hours in labour. Fœtal head above the brim of the pelvis. Meconium passing. Uterine contractions incessant. Abdomen tense, hard, and painful. Craniotomy. No fits after. V.S. ℥xii. Cured.

Case XXIV.—Mrs. G——, æt. 28, Feb. 25, 1833. First pregnancy, 9th month. After eating roasted pork for dinner and supper, was seized with vomiting, convulsions, and insensibility, at 3, A.M.; after V. S. and an enema the fits became slighter; the pulse extremely rapid and feeble. The fits, however, returned occasionally till 10, A.M., when labour-pains came on. At 1, A.M., a dead child was expelled. Fits and insensibility continued four hours after.

26th.—The fits had ceased and consciousness had returned, though imperfectly. Retention of urine. She died five days after, with symptoms of uterine inflammation. Body not allowed to be opened. V.S. ℥xx.; head shaved; enemata, &c.

Case XXV.—A young woman. St. Marylebone Infirmary, July 5, 1833. First pregnancy. Delirium and slight convulsions came on suddenly, after the labour had lasted upwards of 24 hours. Vagina rigid, hot, and tender. Os uteri not fully dilated. V.S. procured no relief. The head being beyond the reach of the forceps, the operation of craniotomy was performed. The fits immediately ceased. Consciousness was not perfectly restored for several days. Copious V.S. Craniotomy. Cured.

Case XXVI.—A young woman, delivered at 3, A.M., on the 20th May, 1828. Several fits of convulsion soon after, of no great violence.

1, P.M.—Fits have ceased; consciousness partially restored; appears heavy and oppressed, and complains of headache. Pulse 50, full and strong. V.S.

10, P.M.—No return of convulsions. V.S. ℥xxv. Calomel, gr. vi. Haust. Sennæ. Cured.

Case XXVII.—In December, 1829, I examined the body of a woman who had died after puerperal convulsions. She was not seen by me during life. Insensibility and convulsions came on during labour, which was protracted. The pulse was stated to have been rapid and feeble. Delivery was completed by craniotomy, and she died comatose three days after. A table-spoonful of serum was found, on inspection after death, at the base of the brain. The pia mater around the tuber annulare vascular. Brain healthy.

Case XXVIII.—Mrs. M——, æt. 28, was suddenly attacked with convulsions, eight days after a natural labour. She had ten severe fits in less than two hours. In the intervals she was completely insensible, with stertorous breathing; dilated pupils; the pulse 110, feeble. The fits went off in a few hours, but she remained for several days in a drowsy confused state. The attack followed the use of very indigestible food. Has since been twice confined, and had no convulsions. Cupping ℥xii. Calomel; Cathart. Enema. Head shaved. Blister. Cured.

Case XXIX.—Mrs. P——, æt. 26, April, 1835. First pregnancy, full period.

Returned home after midnight, from a large dinner party, at which she had partaken of a variety of dishes and wines, and had been seated near a large fire. Labour came on at 4, A.M., and soon after she became incoherent, and said she felt her teeth falling out of her head. On attempting to drink some warm tea, she bit a large piece from the edge of the china cup, and crushed it between her teeth. Convulsions of great violence immediately followed. Copious V.S. and an enema gave no relief. In an hour and a half the head of the child was within reach of the forceps, and it was applied, and the child was soon extracted alive. She died at 11, A.M. The perineum was extensively lacerated, from the impossibility of retaining her for an instant in the same position. The child was known to be alive before delivery, from the cord being around the neck and felt pulsating. Body not allowed to be examined. V.S. ℥xxx.; V.S. ℥xii. Enema. Head shaved. Delivered with the forceps.

CASE XXX.——, æt. 18, unmarried; first pregnancy; end of eighth month. March 3, 1835, St. Marylebone Infirmary, 11, A.M. Has had seven fits of convulsion. Neck and face swollen. Os uteri fully dilated. Face presentation. Pains have nearly ceased. An attempt was made to deliver with the forceps, but it failed, from the impossibility of keeping her steady.

3, P.M.—Fits continuing with undiminished severity, the operation of craniotomy was performed.

4, P.M.—Four fits since delivery, from which she was greatly exhausted. Forty drops of liquor opii sedat. administered, after which the fits became much slighter. The dose was repeated several times, and the fits gradually went off. V.S. ℥xx.; V.S. ℥x. Cured.

CASE XXXI.—A lady, about 26 years of age, who had been in labour with her first child for no long period, was seized with convulsions, for which V.S. was immediately resorted to by her medical attendant. The fits continued with violence till the head was pressing upon the perineum, and it was resolved in consultation to deliver with the forceps. While placing the patient in the proper position for performing the operation, the child was expelled alive by the natural efforts, with the funis round its neck. The fits instantly ceased, but she remained in a state of stupor for ten hours. V.S. ℥xxx. Head shaved; enema; cold lotions; cathartics. Cured.

CASE XXXII.—August, 1836. A young woman in the St. Marylebone Infirmary had fourteen fits of convulsion in the first stage of labour. It was her first pregnancy. Copious V.S. was employed without effect. I delivered her with the forceps. The child was dead. She had only one slight fit afterwards. Cured.

CASE XXXIII.—Mrs. A——, æt. 25; eighth month; fourth pregnancy. Aug. 17, 1836. Yesterday (the 16th) dined on currie and rice, and ate bacon and eggs at tea.

17th.—Awoke at one o'clock in the morning with violent pain in the back part of the head and sickness, for which she took a strong cathartic. A physician was called to her soon after, and ordered five grains of calomel and an antispasmodic draught, which relieved the symptoms. During the forenoon she remained in a drowsy state without complaining. At mid-day a fit of convulsion occurred. At 3, P.M., another and more violent fit followed. I saw her soon after this. The pulse was extremely rapid and feeble, and it became altogether imperceptible at the wrist on the abstraction of eight ounces of blood from the arm. More blood would not flow from a large orifice in the vein. Orifice of the uterus slightly open; labour pains commencing. Membranes ruptured artificially, and liquor amnii discharged. An hour after, four ounces of blood were removed from the temple by cupping, when the pulse again became imperceptible. At 6, P.M., the os uteri being dilated, and the head in the pelvis, I delivered with the forceps. The child was dead. The fits continued, and she died at 8, P.M. V.S. ℥viii. Cal. gr. x.; Haust. Antip. Cal. gr. xv.; Cupping, 4 ounces. Head shaved. Enema.

CASE XXXIV.—Mrs. P——, æt. 35, a widow, in the eighth month of her third pregnancy. For fourteen days had influenza and severe headache. At 1, P.M., 8th February, 1837, attacked with convulsions. At 8, P.M., she had had 16 severe fits. V.S. had been employed, and the hair cut off. At 9, P.M., pulse 110, and feeble; hands and feet cold; stertorous breathing. When the fits occurred, the muscles on the right side of the body became first affected. In about a minute the spasms left

this side, and the muscles of the opposite side became affected. Pupils dilated. Membranes ruptured. At midnight the fits continued, and the head not being sufficiently advanced for the forceps, she was delivered by craniotomy. Only one slight fit occurred after delivery, and consciousness was restored in the course of the day. V.S. ℥xl. Head shaved. Calomel. Enemata. Cured.—*London Med. Gaz., Oct.* 1837.

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56. *On the induction of premature labour.*—By EDWARD A. COREY, Surgeon to the East London Lying-in Institution. Mrs. H., of short stature, and aged about 30, had twice undergone the operation of embryotomy. I attended her, for the first time, about three years since, when the same operation was again deemed necessary, and was performed in the presence of a most respectable practitioner. The pelvic deformity was of the reniform character, the space between the sacro-vertebral angle and symphysis pubis (conjugate diameter), being about two inches and three-fourths. It was consequently determined, should the recurrence of pregnancy render it necessary, that the premature induction of parturition, at the seventh month of utero-gestation, should be had recourse to, as affording the only means of saving the infant from the murderous application of the perforator. She had again become pregnant, and it was calculated that she had arrived at the seventh month of her pregnancy, about Thursday, the 14th of September last. From some remarks and cases which have been recently published by Dr. F. Ramsbotham, it appears that he has succeeded in effecting the induction of premature labour, "*solum ope secalis cornuti.*" I was, therefore, led to employ this substance according to the formula he has suggested, viz:—℞ Secal. Cornuti ℥iij.; Aq. Bullient. ℥viij. infunde per semihoram, et adde Acid. Sulph. Dil. ℥ij. Syr. Simplic. ℥ij. Tr. Card. Co. ℥iij., ut ft. Mist. cujus cap. cochl. ij. mag. q. quartâ horâ.

The first dose of this mixture was ordered at 2, P.M., on the 14th of September. At 6, P.M., soon after the administration of the second dose, the uterine energy became slightly excited; and it was interesting, as well as satisfactory, to observe its gradual increase soon after the repetition of each dose of the medicine. On the next day (Friday) at 1, P.M., the parturient pains were tolerably active, but at considerable intervals. A vaginal examination was instituted, and the membranes were distinctly felt pressing against the undilated os uteri. Saturday, at 11, A.M., the pains had gradually diminished in force and frequency since my last visit, and she had experienced no pain from yesterday at 4 o'clock, P.M., to the present time, and was, to use her own expression, "quite well again." The institution of another vaginal examination demonstrated that the os uteri had not, in the least degree, increased in dilatation, and that the pressure of the membranes which had been previously experienced, even during the interval of pain, had now entirely subsided. She expressed great anxiety and apprehension as to the result.

On the same day, about 6, P.M., I again visited her, and found her precisely in the same situation. I was fearful of repeating the secale cornutum, lest it might destroy the infant. I therefore thought it most prudent to rupture the membranes, the distension of which had now completely subsided; and this, having converted the nail of the index finger into a saw, I accomplished with some little trouble.

She was again visited on Sunday, at a little after 1, P.M. She remained in a similar condition, and there had been no accession of the pains of parturition.

On Monday she had not yet experienced any pain, and the bowels being in a constipated state, I thought it prudent to prescribe an aloetic purgative, with a carminative addition, which had the effect of thoroughly evacuating the bowels, and exciting the uterus to action; so that early on Tuesday morning the pains of labour commenced with considerable activity, and continued with but slight intermission until six o'clock in the evening, when she was delivered of a living infant of healthy appearance. The fœtal head, notwithstanding the severity of the parturient paroxysms, occupied several hours in its passage through the contracted pelvis, and, after expulsion, presented on its lateral portion an evident indentation, and was also considerably flattened. The whole process terminated as in a common accouchement. The placenta was expelled, with but little assistance, about half an hour after the birth of the infant, which was restored in ten minutes by immersion in the warm bath, and by artificial respiration. The child remains at the present time (Oct. 16) healthy and vigorous, takes the breast freely, and there is every pro-

bability that it will continue to live. The patient has not suffered the least pain or inconvenience since her delivery; in short, I never witnessed a more rapid recovery even in an ordinary case.

Remarks.—The necessity for the induction of premature labour in the present instance must, I think, be evident to every well-informed obstetrician; and I also am of humble opinion, that the means so carefully adopted for the production of so desirable an object were based upon the soundest principles of obstetrical science. I am induced to believe, that had I continued the administration of the secale cornutum for a longer period, that the expulsion of the infant might most probably have been effected without the necessity of the least manual interference; but I was deterred from persevering in its use from the apprehension that it might exert a deleterious effect upon the infant, and also injure the mother. I was fully aware of the great importance of maintaining the membranes entire as long as possible, in order to be able with greater certainty to insure the safety of the infant; but as the secale failed to produce the anticipated result, I was reduced to the alternative of rupturing the membranes, even with some risk to the infant, rather than hazard, perhaps, irretrievable injury both to the mother and child, by persevering in the administration of the ergot. The induction of premature labour appears to have been practised by the ancient physicians, more particularly by Ætius and Paulus Egineta, who recommended it in cases of extreme contraction of the pelvis; but it was not until about the middle of the last century that the most eminent practitioners in London decided on its propriety and morality. It may be laid down as an incontrovertible obstetrical axiom, that if there be less than the space of three inches, and more than two and a half, between the sacral promontory and the pubes, that the induction of parturition at the seventh month of utero-gestation becomes indispensably necessary, and its utility will be rendered more evident when we consider the disproportion between a structure thus constituted, and the fœtal head at the full period of intra-uterine maturity. From accurate and multiplied observations, Madame Lachapelle has arrived at the conclusion that the biparietal diameter of the fœtal head at the seventh month of pregnancy does not measure more than three inches, and sometimes even less; and, therefore, allowing for its compressibility in consequence of incomplete ossification, it may be easily imagined that no very considerable difficulty will be experienced in its passage through such a pelvis as I have mentioned. The records of the science prove most satisfactorily that the woman is not subjected to greater risk by premature labour induced artificially, when carefully performed, than by spontaneous parturition at the full period of gestation. The existence of some morbid affection, rupture of the uterus, or some accident entirely independent of premature delivery, has been invariably discovered in those cases which have had a fatal termination. Denman operated eight times with complete success (*Introd. to Midwifery*, vol. ii. p. 224). M. Salomon mentions sixty-seven, Kluge twelve, and Ferrario six, which also terminated successfully (*Journal Compl. des Sc. Méd. &c.*, tome xxxiv. p. 339). In the practice of Reisinger (*Dict. de Méd.* 2nd edit. tome i. p. 429), one died in fourteen; but Merriman (*Synopsis of Difficult Parturition, &c.*, p. 161) has not lost one in forty-six upon whom he appears to have operated.

Artificial premature delivery does not, however, terminate so happily with regard to the infant. In forty-seven cases which occurred in the practice of Merriman (*Synopsis, &c.*, p. 180), twenty-six were dead, five were born living, but not possessed of viability, and sixteen lived. Hamilton has been more fortunate, and in twenty-seven cases has succeeded in preserving the lives of twenty-three (*Ryan's Manual*); Ferrario, five in six; Kluge, nine in twelve; Salomon, thirty-four in sixty-seven; and Burckhard (*Thesis, Strasburg*, July 20, 1830), thirty-five in fifty-two. Premature delivery has also been recommended in cases entirely unconnected with pelvic distortion. Its performance has been proposed by Mai, Ritgen, and Carus, in those instances where the fœtus habitually dies some time before the expiration of the full period of gestation, as well as in some diseases induced by pregnancy, which are dangerous to the mother, as metrorhagies, retroversion, &c. Siebold, according to Kilian (*Die Operative Geburtshulfe*, vol. i., p. 380), practises it in ascites and hydrothorax, and M. Costa (*Revue Médicale*, 1827, tome i., p. 343), thinks it necessary in diseases of the heart. Conquest (*Outlines of Midwifery*), Ingleby in his work on Uterine Hæmorrhage, Busch (*Lehrbuch der Geburtskunde*, 2nd edit., 1833), and other authorities, have also recommended it in cases entirely

independent of pelvis distortion. My limits will not permit me to discuss the propriety of its adoption in the various morbid conditions just alluded to, but it is evidently the only rational means of relieving the woman who has the misfortune to be affected with diminution of the natural dimensions of the pelvis, and of rescuing her infant from inevitable destruction.

The operative methods which have been proposed and practised for the induction of premature labour are very numerous, but the one most usually had recourse to, and upon which the greatest reliance can be placed, is the sudden evacuation of the liquor amnii, either manually or instrumentally. Some writers of celebrity have advised its gradual discharge, but the majority have decided in favour of the former, as by the sudden vacuity of the uterus that organ is more likely to take on a brisk parturient action, by which means there will be a greater probability of saving the life of the infant. I consider, also, that there can be no objection to the previous administration of the ergot, according to the formula, and on the respectable authority of Dr. Ramsbotham; and in some cases I am inclined to believe it may (*per se*) produce the desired effect. I may add, in conclusion, another mode of procedure, which appears to be in high repute with the practitioners of the French school, although I cannot recommend it on my own personal experience. Velpeau (*Traité Complet de l'art des Accouchemens*, tome ii., p. 413), thus mentions it. "La dilatation au moyen d'un morceau d'éponge, comme la imaginé M. Kluge, est d'un effet beaucoup plus certain. L'irritation qu'en résulte est permanente, progressive, régulière, et soutenue par la pression qu'exerce l'espèce de tampon qu'on maintient en même temps dans le vagin. Sous l'influence d'une pareille excitation, la matrice entre bientôt en action, et il est difficile que le travail n'acquière pas rapidement un énergie suffisante."—*Lond Med. Gaz., Oct.* 1837.

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57. *Retroversion of the Uterus.*—A very remarkable case of this, and one we believe perfectly unique, has been recently communicated to M. P. Dubois, by Dr. Mayor, of Lausanne. The uterus was completely retroverted, the recto-vaginal septum lacerated, and through this laceration the retroverted uterus, with its contents, a fœtus of three months and a half, passed entirely out of the vulva. We shall endeavour to give a diagram illustrative of this accident in our next number, with some of the details of the case.—*La Presse Médicale*, March 11, 1837.

MEDICAL JURISPRUDENCE AND TOXICOLOGY.

58. *Poisoning with the Daphne Mezereon.*—The following cases, illustrative of the poisonous effects of the berries of the Daphne mezereon on the human subject, communicated to the *Lancet*, (Oct. 7, 1837,) by Dr. James Grieve of Dumfries, is a valuable contribution to our toxicological knowledge, but few cases of the same description being on record, none so far as we recollect, in which the narcotic influence of the plant was so marked as in the elder girl.

"On the 29th August, 1837, at the village of Lochmaben, eight miles from Dumfries, three children, of the respective ages of two years, two years and a half, and three years, whilst amusing themselves in a garden, swallowed several of the red berries of the D. mezereon. The eldest girl was, by her parents, detected with some of the berries in her hand. In a few minutes after leaving the garden they were all seized with violent vomiting and hypercatharsis, which continued for some hours. Some of the berries were ejected from the stomach; a few also passed, unchanged, through the bowels. Mr. Brown, a medical practitioner in the village, was called in, and administered a solution of the tartarized antimony to each of the little sufferers. In the youngest child, a boy, the above symptoms soon ceased, and he suffered no further inconvenience; in the second child, a girl, the vomiting and purging were succeeded by considerable tympanitic distension of the abdomen, which speedily subsided on the administration of a common enema, and she also soon got well. The eldest girl, however, was destined to suffer more severely; she gradually became listless, languid, and drowsy, and exhibited other signs of approaching narcotism. Mr. Brown became alarmed, and I was sent for from Dumfries.

"On my arrival at Lochmaber, nearly six hours from the time the fruit had

been swallowed, I found her labouring under the ordinary effects of a powerful sedative; she was lying upon her back, her countenance was sunk and ghastly, her eyes dull, the pupils were slightly dilated, and contracted sluggishly on the approach of a lighted candle; when allowed to fall asleep her eyes were turned up, the respiration was slow, but free from stertor; pulse 44, very compressible, and occasionally intermitting; when roused she feebly asked for cold water to drink, but made no complaint of pain. From the time which had elapsed between my arrival and the reception of the poison, and the little patient having already vomited and purged very freely, I judged it unnecessary to have recourse to the further exhibition of emetics, or to the use of the stomach-pump, the indication to be fulfilled being to rouse and sustain the energies of the system, and enable it to overcome the baneful effects of the berries. I accordingly had immediate recourse to stimulants. A teaspoonful of brandy conjoined with a few drops of the liq. ammoniæ, was administered every quarter of an hour; sinapisms were applied to the feet; the spine was well rubbed with warm spirit of turpentine, and she was carried about the room in the arms of her nurse. In little more than an hour I had the satisfaction to witness the beneficial effects of the above treatment; her sensibility to external impressions gradually returned, and her pulse rose to nearly 100. The thirst now became very urgent, and she was allowed to drink cold water in small quantities at a time, which she preferred to the coffee at first ordered. I now omitted all stimuli, and as she had no evacuation from the bowels since my arrival, I prescribed calomel, iij. grains, to be followed in half an hour by iij. drachms of castor oil. Three hours after the administration of the medicine, the bowels had not acted, nor had she voided any urine; I then ordered the calomel and castor oil to be repeated, and to have a common enema with spirit of turpentine, two drachms, which soon came away without any admixture of feculent matter. In the course of three hours the bowels acted partially, the stools were scanty and clay-coloured, being remarkably devoid of bile, nor did they assume a natural colour until next day, after several doses of calomel had been given. It is worthy of remark, that although the evacuations were carefully examined, the seeds of one berry only were found subsequent to the developement of the narcotic symptoms.

"On reviewing the above cases it appears that the primary effects of the fruit of the D. mezereon on the human subject, are that of a powerful local irritant, causing vomiting and hypercatharsis, and that it only operated as such in the two younger children; its secondary effect seems to be that of a powerful narcotic, for we have the elder child, though similarly vomited and purged with the others, labouring under all the symptoms of poisoning; the narcotic principle of the fruit having been absorbed and carried into the circulation, and had it not been for the opportune application of stimulants she must inevitably have sunk under its influence."

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59. *Experiments on the effects of the Hydrated Peroxyde of Iron as an antidote to Arsenious Acid.* By Dr. Von Specz, Professor of Chemistry in the Theresian Academy of Vienna.—In the year 1834, as our readers are aware, Dr. R. W. Bunsen and Dr. A. A. Berthold published a small work at Göttingen, on the use of hydrated peroxide of iron as an antidote to arsenic, in which they claimed for this remedy all the properties of a true specific. With the view of testing the accuracy of their results, Dr. Von Specz prepared a large quantity of the hydrated peroxide of iron, and instituted a series of experiments with it, on animals.

Experiment 1. On the 5th of October, 1834, at ten o'clock in the forenoon, twelve grains of white arsenic, mixed with a portion of boiled meat, was administered to a cat six months old. At twelve, retching and vomiting commenced. An attempt was made to administer the antidote mixed with water, by means of a tin funnel, but the animal was so extremely restive, that no more than a drachm of the hydrated peroxyde could be given. Death occurred about one o'clock.

Experiment 2. On the 15th of June, 1835, at ten o'clock in the forenoon, a scruple of the white oxyde of arsenic was given in some sausage to a dog six months old. Half an hour afterwards, Dr. Von Specz attempted to introduce the antidote, by means of a syringe furnished with an elastic tube. The dog, however, bit the tube, and was otherwise so unmanageable, that scarcely any could be administered. He died at half-past twelve.

Dr. Von Specz finding that the hydrated peroxyde of iron could not be given in a sufficient dose in this way, made the following change in the mode of exhibition.

Experiment 3. On the 28th of October, 1835, at ten o'clock in the forenoon, a drachm of finely powdered arsenic was administered to a mastiff six months old, which had been sparingly fed the day before. About five minutes afterwards, an ounce of the dry hydrated peroxyde of iron, finely powdered, and mixed with a sufficient quantity of fryed liver pudding, was laid before him. He ate the whole, and afterwards drank about three ounces of milk. About eleven o'clock, he had some fluid evacuations from the bowels, but still appeared lively. About three o'clock P. M. he looked dejected, went to his bed, and lay there quietly; during the night he had five fluid evacuations. On the 29th, he looked dejected, did not stir from his bed, and neither ate nor drank. On the 30th he ate a little meat, drank about six ounces of milk, and returned to his bed. On the morning of the 1st of November, he was quite lively, and ate every thing that was offered to him.

Experiment 4. On the 10th of December, 1835, at ten o'clock in the forenoon, a drachm of finely powdered arsenic was given in some pudding to a bitch, twelve months old. Five minutes afterwards, an ounce of the antidote was given, mixed with liver pudding, the whole of which was devoured by the animal. At eleven o'clock she went to her bed, appeared shy and timid, and refused to eat. She remained quietly in her bed the whole night, without vomiting or purging. On the morning of the 11th she had three fluid evacuations from the bowels, and did not appear to be ill; on the 12th she was running about as usual.

The foregoing mode of exhibiting the antidote to animals may be employed until vomiting commences; after this occurrence, it must be administered by means of a syringe.

As one-sixth of the quantity of arsenic administered in Experiments 3 and 4, is more than sufficient to kill a dog, Dr. Von Specz looks upon the hydrated peroxide of iron as a true specific, and thinks that its failure in any given case is to be attributed to its being employed too late, or given in too small a quantity. In order to ensure the giving of a sufficient dose, ten times the quantity of hydrated peroxide of iron must be administered; but a much larger quantity may be safely given, as this remedy does not exercise any deleterious effect on the animal economy. In order to obtain the remedy in a state of purity, and free from any admixture of copper, he recommends the precipitation of the iron by ammonia, and states that this preparation when properly made, and preserved in bottles with good glass stoppers, will retain its virtues for a very considerable time. The following is the mode of exhibition which he recommends in cases of poisoning by arsenic.—℞. Olei Amygdal. dulcis, Pulv. Gummi Arabici, Pulv. Sacchari Albi ää ʒij. tere simul et affunde, sensim terendo, Aquæ destillatæ ℥xv.; Hydratis Ferrici ℥iij.; of this mixture, previously well shaken, a dessert-spoonful is to be given every three minutes.

Dr. Von Specz resumed his investigations the following year, but instead of the pure hydrated peroxyde, he employed substances in which it is known to exist in considerable quantity, and which require no previous preparation, namely, rust of iron, and hæmatite (red iron ore).

Experiment 1. On the 16th of January, 1836, at ten o'clock in the forenoon, a drachm of finely pulverized arsenic, mixed with about an ounce of fryed liver pudding, was given to a dog twelve months old. Immediately afterwards, a mixture of two ounces of hæmatite with seven ounces of liver pudding was offered to him, the whole of which he devoured, and then drank a small quantity of milk. Forty minutes afterwards, he was attacked with violent retching; the anterior extremities were extended spasmodically forwards, and the posterior drawn backwards, as is usual in cases of poisoning from arsenic; he also had severe vomiting, and convulsive spasms of the abdominal muscles. At eleven o'clock he went to his bed and was peevish; the retching continued during the afternoon, and he had five dark-coloured evacuations from the bowels. On the 17th of January, he remained the whole day in his bed, refused to eat or drink, and had six dark-coloured evacuations. On the 18th he appeared quite lively, sprang to meet the servant, and ate and drank with much desire.

Experiment 2. On the 19th of March, 1836, at eleven o'clock in the forenoon,

a drachm of finely powdered arsenic, mixed with three-quarters of an ounce of liver pudding, was given to a dog four months old, and immediately afterwards an ounce and a half of rust of iron mixed with six ounces of liver pudding. The animal ate only three-fourths of the antidote, and then drank a small quantity of milk. At half-past eleven he vomited, but still appeared lively; at one o'clock he had a green evacuation from the bowels. During the afternoon he had five alvine evacuations and frequent retching, but no vomiting. In the evening he went to his bed, and remained there quietly during the night; on the morning of the 20th, he had several dark-brown fluid evacuations, but was in other respects lively, had a good appetite, ate bread, and did not exhibit the slightest trace of illness.

Experiment 3. On the 19th of March, 1836, at two o'clock in the afternoon, a drachm of finely powdered arsenic, which had been previously dissolved in two ounces of hot water, was poured down the throat of a dog four months old, while the solution was still warm, by means of a tin funnel, and about ten minutes afterwards, an ounce and a half of rust of iron, mixed with a quantity of milk, was administered in the same way. Five minutes afterwards, the dog was attacked with convulsions and retching, and dropt down as if dead. After fifteen minutes he got up, crawled into a corner, and vomited violently. During the night he had several dark-coloured alvine evacuations. On the 20th he was sullen, and refused to eat; on the 21st he was fresh and lively, and greedily ate some bread offered to him.

Experiment 4. On the 24th of March, 1836, at nine o'clock in the forenoon, a drachm of arsenic, mixed with an ounce of liver pudding, was given to a dog four months old, and then an ounce and a half of hæmatite, mixed with five ounces of liver pudding; the animal devoured the whole. Forty minutes afterwards, he was attacked with retching and convulsions, followed by severe vomiting; as soon as the retching ceased, he ate up again what had been ejected from the stomach. At twelve o'clock he began to vomit again, became dejected, and went to his bed; he whined, retched continually, and his jaws were covered with a whitish foam. During the afternoon he had several alvine evacuations of a reddish colour, trembled, and was affected with constant retching and convulsive twitches. In the evening he was more tranquil. On the 25th he was quite lively, sprang to meet us, and ate with a good appetite.

Experiment 5. On the 24th of March, 1836, at eleven o'clock in the forenoon, a drachm of finely pulverized arsenic, mixed with an ounce of liver pudding, was given to a dog three months old, and immediately afterwards an ounce and a half of lapis hæmatites mixed with five ounces of liver pudding; the animal consumed only two-thirds of the antidote. Twenty minutes afterwards he began to vomit, and at the same time had an evacuation from the bowels: he was then attacked with retching, vomiting, and convulsions, which lasted until one o'clock; during this time he vomited six times. At two o'clock he became dejected, shivered, and sought his bed; the retching was extremely severe, and his jaws were covered with foam. These symptoms disappeared about eight o'clock in the evening. On the 25th, he remained in his bed; about ten o'clock in the forenoon, he vomited twice a white frothy fluid; at eleven, he had some fluid evacuations from the bowels. On the 26th, he had several greenish-brown evacuations, but appeared lively and ate with appetite.

From these experiments Dr. Von Specz is led to conclude, that rust of iron and hæmatite, although they do not prevent all the bad effects of arsenic on the system, may, in defect of the hydrated peroxyde of iron, be employed as antidotes to that poison. To the hydrated peroxyde, which is capable of neutralizing all the deleterious properties of the poison, he assigns the first rank as an antidote to arsenious acid, next to this stands rust of iron, and then, *sed longo intervallo*, hæmatite, which in consequence of its slow operation, may be used without any beneficial result where the poison is exercising a very powerful action on the system. Experiments 1, 4, and 5, of the second series, shew distinctly the predominant influence of arsenic on the system, although the hæmatite was administered immediately after the poison, and before its specific effects could be produced. The animals, it is true, did not die, but the counteracting powers of the antidote were not manifested until nearly three hours after its exhibition. These objections do not apply with any thing like the same force to rust of iron, which Dr.

Von Specz thinks may be advantageously employed as an antidote in defect of the hydrated peroxyde. Its great efficacy as an antidote is shewn in Experiments 2 and 3 of the second series. The remarkable effects of the arsenic in Experiment 3 are to be attributed to the mode of administration, for Dr. Von Specz has repeatedly found that the poison operates much more rapidly when introduced into the stomach in a state of solution. A drachm of arsenic in powder does not produce its deadly effects on the system in less than six or eight hours, while the same quantity dissolved in warm water destroys life in a much shorter time. Rust of iron has also the additional advantage, that it can always be procured with facility.—*Brit. and For. Med. Review*, from *Med. Jahrbücher des k. k. O. St.* xix Band. 4 Stück. xx Band. 1 Stück. 1836.

60. *On the effects of black oxide of manganese when inhaled into the lungs.*—So little is known respecting the action of manganese on the animal body, that the following observations by Dr. John Couper, Regius Professor of Materia Medica in the University of Glasgow, are particularly interesting.

"In the chemical works of Charles Tennant and Co., a considerable number of men are employed in grinding the black oxide of manganese, to be employed in the manufacture of bleaching powder. The surface of their bodies is of course constantly covered with the manganese; the air which they breathe is loaded with it in the form of fine powder, and they are ever exposed, from neglect of cleanliness, to swallow portions of it along with their food. In 1828, a previously healthy young man engaged in this occupation was observed to exhibit symptoms of paraplegia. The loss of power in the lower limbs was at first so slight, that, though perceptible to the bystanders, it was scarcely observed, and never made the subject of complaint by the man himself; but it slowly increased, till at the end of some months he was forced to quit his work. After trying the remedies usually employed in such cases without effect, he removed to a distant part of the country, where, at the end of a year, he had, according to report, made little or no progress towards recovery.

"In the following year, another workman, also employed in grinding manganese, and previously enjoying good health, was similarly effected. No suspicion being entertained that the manganese could operate as a poison, this person was permitted to continue his employment, which he did for many months, with the exception of some intervals employed in medical treatment. The paralytic affection increasing, and the former case being recollected, the manganese was at length suspected as the cause. The workman was removed to another department, and from that time there was no further increase of the symptoms. At present, after a lapse of seven years, only a very trifling amendment has taken place in the condition of this person. The loss of power is most apparent in the lower extremities, which are so considerably affected that the patient staggers, and inclines to run forward when he attempts to walk. The arms are also weakened, but only to a small extent. The patient complains that in speaking he cannot make himself heard by persons at a moderate distance, as formerly; and the inability seems to depend, not on any defect in articulation, but on weakness of voice. There is no deficiency of sensibility in any part of the body: the intellect and external senses are unimpaired; but there is an obvious expression of vacancy in the countenance, apparently from the paralysed state of the muscles of the face. From the same cause the saliva is apt to escape from the mouth, especially during speaking. There is no tremor of any part of the body—no colic—no constipation, nor other derangement of the digestive function. The remedies which were tried in this case were mercury, the warm bath, blisters to the head and spine, and strychnine; but none of them produced any effect upon the disease.

"Since the occurrence of these cases, three other workmen employed in grinding manganese have been similarly affected; but in them the disease was arrested by removing the cause. As soon as the staggering, which is the first symptom of the disease, was remarked, their employment was changed. In all of them the paralysis gradually diminished, and at the end of a few weeks was entirely gone.

"These cases seem to show in a satisfactory manner, not only that manganese is an active poison to the human subject, but also that its effects, when it is slowly introduced into the system, resemble those of mercury and of lead, when simi-

larly applied. Like those two metals, it paralyses the motor nerves; but from the former it differs, in as far as it first affects those of the lower extremities, and does not occasion tremors of the affected part; whereas, in the case of mercury, the paralysis commences in, and is usually almost entirely confined to the arms, and accompanied by the *tremblement métallique*. From lead, again, manganese is distinguised by its producing no effect upon the intestinal canal analogous to lead colic, or to the constipation occasioned by the action of that metal.

These cases also show that the disease produced by manganese, like other varieties of metallic paralysis, is, when fully developed, a very permanent and intractable affection; and that, therefore, the attention of medical practitioners, and of persons who have occasion to use manganese in large quantities, should be directed chiefly to the necessity of arresting the progress of the disease, by removing its cause as soon as the first symptoms make their appearance. When this is promptly done, the three cases last noticed show that a speedy restoration of health may be expected.

It is almost unnecessary to remark, that the black oxide of manganese used in the arts, contains no metallic impurity except a little iron. The poisonous action therefore, must be attributed to the manganese itself.—*Brit. An. Med. Jan.* 13, 1837.

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61. *Influence of opium eating on health and longevity.* By G. G. Sigmond.—A very interesting question has arisen upon the effects of opium-eating on health and on longevity. The late Earl of Mar had insured his life in one of the offices in Edinburgh to a large amount. He was an opium consumer to the amount of from two to three ounces of laudanum daily, but this fact had not been stated at the time the policy of insurance was granted, and on his death, which occurred two years afterwards, from icterus and ascites, the company declined payment of the policy, assigning as the reason, that his lordship had concealed from them a habit which tends to shorten life. The bank that held the policy as security for money lent entered upon an action, and the consequence was that the insurance-office was adjudged to pay the amount, not, however, on the ground that the habit was injurious to life, but upon the ground that the office had not shown the proper degree of caution when the insurance was effected. Dr. Christison was a medical witness on that occasion, and his attention was necessarily directed to the subject, which led him to an inquiry, and from eleven cases which came under his notice, he considers that the practice of opium-eating is not so injurious as is commonly believed,—this, however, is not the general idea. Mr. Madden, whom I have just quoted as an authority to be relied on, says, that from personal inquiries he found it was rare for an opium-eater at Constantinople, if he began the practice early, to pass thirty years of age.

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62. *What is the smallest quantity of opium that will prove fatal?* This, says Dr. Sigmond, is a question of no small importance, and one which has not been altogether satisfactorily answered. It has been said, four grains of solid opium; and the best authenticated case is one which will be found in the admirable work on poisons, by Dr. Christison; it was related to him by Dr. W. Brown. A dose of four grains and a half killed an adult,—it was combined with nine grains of camphor. The man took the opium at seven in the morning for a cough, at nine his wife found him in a deep sleep, from which she could not arouse him. Nothing was done for his relief till three in the afternoon, when Dr. Brown was called to him, and found him labouring under all the usual symptoms of poisoning by opium, contracted pupils amongst the rest. Death ensued in an hour, notwithstanding the active employment of remedies. A case of fatal narcotism has lately excited a good deal of attention amongst the medical men in Paris. It was produced by twelve drops of laudanum, used as a lavement, for a patient under the care of M. Rayer, in the Hôpital de la Charité, and death occurred in eighteen hours. It has been said by Orfila, in his *Toxicologie Générale*, that opium acts more energetically when introduced into the rectum than when administered by the stomach, but certainly such a result from so minute a quantity could never have been foreseen. Dr. Christison states, that he has given, by injection, without producing more than the usual somnolency, two drachms, by measure, of laudanum. In examining the details of cases, and more particularly in looking through the vast number that medical men have very judiciously sent to the periodical medical

journals, I am quite astonished at the largeness of the doses that have been taken by suicides, and yet with proper care they have recovered from their poisonous effects. In one of the German journals there is a female described as recovering after having swallowed no less a quantity than eight ounces of crude opium. It seems to me, however, that the poison taken in tincture proves fatal in much smaller doses than in the solid form, and this is probably to be accounted for by the length of time which the stomach must take to dissolve a large mass, and in the interim some of the symptoms which excite alarm are perceptible, and remedial agents are employed; but where the tincture has been taken the peculiar sopor may supervene within twenty minutes. Much, too, will always depend on the fulness or emptiness of the stomach; thus, opium taken fasting in the morning, will produce its effects much more rapidly and certainly than at any other time in the day; and after a meal it is very likely to be vomited back. I think, from all that I have been able to collect, that I should draw the conclusion, that two drachms of tincture of opium might, under some circumstances, act as a destroyer of life tolerably quickly; still, however, I should well weigh all the circumstances before I should believe such a dose of properly-formed tincture to have proved fatal. About six grains of solid opium could not be taken with impunity by those unaccustomed to it.

CHEMISTRY AND PHARMACY.

63. *New method of preparing Copaiva for administration.*—Pharmaceutists have long sought for some means of administering copaiva, by which its nauseous taste and disagreeable odour should be overcome without its remedial powers being destroyed. M. Mothe has attained this object by enclosing the balsam in ovate capsules of gelatin. M. Raquin, pharmaceutist at Chancery, has communicated to the Academy of Medicine of France, a method devised by himself, which appears to be an improvement on that of Mothe. Instead of employing the liquid copaiva like the latter, M. R. thickens it with magnesia. If a sufficient time be allowed, six months or more, he asserts that a thirty-second part of magnesia will render the copaiva sufficiently consistent. The mass thus made is formed into ovate pills and then covered with a very thin covering of pure gluten. N. Cullerier has employed the preparation in more than a hundred cases, and is convinced of its efficacy. This preparation has the advantage over that of Mothe, in containing more copaiva in the same bulk, the capsules of Mothe never being full, and the envelope being thicker. The gelatinous capsule weighing eighteen grains contains only ten grains of copaiva. The glutinous capsule weighing eighteen and a half grains contains sixteen grains of copaiva, magnesia three-quarters of a grain, and the envelope a grain and three-quarters. Thin as is the glutinous envelope it is completely impermeable, and remains so for an indefinite period; the gelatinous capsules, on the contrary, allow the copaiva frequently to transude after some time.

The committee of the Academy to whom the memoir of M. Raquin was referred, have made a report highly favourable to the invention of this pharmaceutist. The committee have satisfied themselves that these capsules are perfectly dissolved in the stomach.—*Bull. Gen. de Thérapeutique*, Aug. 15, 1837, and *La Presse Médicale*, July 1, 1837.

64. *Discovery of Iodine in Cod-fish Oil.*—Dr. Kopp suspecting from the analogous therapeutic effects of iodine and the oil of the liver of cod-fish, the presence of the former in the latter substance, requested Mr. Hopper to analyse the latter. This he has done, and the result is completely confirmatory of the suspicions of Dr. Kopp.—*Hufeland and Osann's Journal*, 1836.

65. *Test of Morphia.*—M. Lafargue, in a communication to the French Academy, states that the most invariable and delicate test of the treatment of morphia is to be found in innoculation. He has tried infusions of several of the species of poppy which contain that principle, and of their congeners which do

not, and he finds invariably that a small quantity introduced under the skin, as in vaccination, is followed by the developement of a papula of determinate character.

MEDICAL STATISTICS.

66. *Louis on the application of Statistics to Medicine.*—In our last number we mentioned that the Academy of Medicine of France had been engaged in the discussion of this question, and gave the speech of M. Double. We now insert the remarks of M. Louis in reply, that our readers may be in possession of the arguments on both sides. Though this discussion has not resulted in fixing the limits of the applicability of statistics to medicine, still much light has been thrown on the subject. Its utility, in some cases, has been clearly demonstrated, as must be admitted by its warmest opponents, whilst its advocates seem to have abated much of their original pretensions.

"The object of medical statistics is the most rigorous determination which is possible of general facts, which, in my opinion, cannot be arrived at without their assistance. Thus a therapeutic agent cannot be employed with any discrimination or probability of success in a given case, unless its general efficacy, in analogous cases, has been previously ascertained; therefore I conceive that without the aid of statistics nothing like real medical science is possible.

"Medical statistics have been attacked in their application to therapeutics, to normal and pathological anatomy, and to pathology. We must therefore look on them in all these different points of view; and first with reference to pathology. But before proceeding, let me remind you that medicine is a science of observation, and that I seek for truth in facts.

"Supposing, then, that you wish to study the symptoms of a disease, you can only do so by carefully collecting a sufficient number of facts; and as you do not always observe the same symptoms in the same disease, you will have to remark the relative frequency of their occurrence in particular cases,—that is, you must begin to count.

"It must of course be admitted that symptoms vary according to an infinity of circumstances; yet, to ascertain that these variations take place, and in what they consist, you must count how often each symptom shows itself, in a certain number of cases, under certain circumstances. The more deeply you study a symptom, the more you must count. If you say such a symptom occurs often, or it occurs seldom, you mean that you have seen it five, or twenty, or a hundred times. If you consider the number of cases from which you have to form your judgment not numerous enough to lead to any definite result, you may perhaps look on these results as provisional, until you can employ a more extensive induction. But how many particulars will be necessary to arrive at one general definite result? Reason can give no answer, but experience shows that an indefinite number is not required. Thus six hundred cases have been sufficient to settle definitely the influence of ease on longevity.

"Inquiring myself into the effect of sex on the developement of phthisis, I obtained a result, which was soon confirmed by M. Benoiston, working on facts of a similar kind, but much more numerous. I might cite many other instances: but to continue.

"Suppose that you wished to ascertain the duration of a symptom, would you select a few cases out of a number, and judge by them? On the contrary, to obtain your object, you would evidently have to ascertain the mean duration of the symptom in all your cases, next mark those above and below the mean, and then the extreme limits of its duration; and because the duration may vary according to age and sex, you must further arrange these facts in groups,—no doubt a troublesome labour, but a necessary one. And if, after observing a great variation in the frequency and the duration of symptoms, you wished to find out its cause, you could not, without having your cases carefully arranged and classified in this way.

"It may perhaps be said, that physicians have in all times paid attention to the duration of diseases. They certainly have done so; but they have only said, in a general way, that diseases vary according to a number of causes, are longer or

shorter, &c. What I have just said applies to diseases which necessarily terminate in death, or in a return to health. All that writers before our times have told us is, that such and such diseases are more or less often fatal; but such rough guesses or statements are of no value, and daily experience shows that they deserve no confidence.

"If, then, mortality, taken in general, can only be ascertained by calculation, how can the variations of mortality, according to age, sex, and strength, be known, without the aid of numerical analysis?—how can we investigate the frequency of sporadic diseases, the predisposing and the exciting causes of disease, without having recourse to numbers?

"If we should study two or three particular cases as types, as M. Dubois recommends, we could only arrive at conjectures about the cases under consideration, —we could not satisfy ourselves whether the circumstances preceding the disease were simple coincidences or were causes. But supposing that we did arrive at just conclusions from a few cases, yet they would be confined to these cases, and have no general value. Thus, if, after examining a certain number of cases in different points of view, one circumstance presented itself only six times in the hundred, its importance might be doubted, and it might be looked on as merely a coincidence; but if it presented itself twenty-five times in the same number, its value would be very different. And in this way, in the case supposed by M. Double of bad news being brought to a thousand women in childbed, the physician will not conclude that he may announce bad news to women under such circumstances without any danger: he will only learn that the action of such a case is not likely to be dangerous, which he could only know by the numerical method.

"Undoubtedly, by studying numerically the different causes influencing disease, we cannot arrive at any positive result, but we may avoid errors otherwise inevitable. Phthisis is a good instance of this. Supposing, what I am not at all sure of, that phthisis is sometimes the result of the inflammation of the tissues composing the lungs, how can we believe that this is the sole, or even a common cause, when we know that phthisis is more common in women than in men, and that the reverse is the case with regard to pneumony and pulmonary catarrh; that tubercles are not more common in the case of dilatation with redness and thickening of the bronchi than in subjects labouring under disease foreign to the lungs, other circumstances being the same,—not more frequent in those who sink under chronic gangrene of the lungs than in those who die of a different disorder quite independent of the lungs.

"Thus, if we wish to study deeply the symptoms, to know the progress and duration of maladies, their relative frequency and their causes, counting is indispensable; for without it no precise result can be obtained.

"Numerous exact and carefully analysed observations have shown, that after the age of fifteen there can be no tubercles in any organ without their existing in the lungs. No less exact observations have shown, that one form of chronic peritonitis is tubercular from its origin. When, then, chronic peritonitis exists, we may conclude that the lungs are tubercular, even though auscultation and percussion afford no signs; and this I have on actual examination repeatedly found to be the case. This is a pretty conclusive argument against those who think that physicians, when they use numerical analysis, throw aside induction entirely.

"If, again, after studying the symptoms and the duration of a disease whose termination is sometimes fatal, you wish to ascertain its seat, and whether there did not co-exist with the primary lesion other lesions peculiar to it, we must begin anew to count: you will have to learn, by an appeal to facts, what is the primary lesion, and then what are the secondary ones, and the circumstances attending them.

"But the primary lesion itself may vary much, according to the different periods of life; and here again you must classify your cases, and appeal to numbers. M. Dubois (d'Amiens,) however, will advise you to be satisfied with approximative calculations; but see their result. According to Corvisart, dilatation with thinning of the walls of the heart is common; but on opening his book, and counting, only one case is found. The same statement is made by Bertin and Bouillaud, in their works; yet in forty-five cases of heart disease observed by me at

La Charité during eight years, no instance of it was seen. In the same way, the general statements of Laennec as to ulcerations of the trachea being common in phthisis, but uncommon in those who have not tubercles, are found, on numerical analysis, to be exactly the reverse of the fact. The more gross such blunders are, the more clearly do they show the uselessness of mere approximative results.

"Thus the errors produced by the neglect of numerical statistics are shown with regard to pathological anatomy, as well as to pathology itself.

"If I am to allude to the case of typhoid fevers, the reason why their nature has not been understood till modern times is, not only that post-mortem examinations used to be neglected, but also that the knowledge of their symptoms and lesions had been trusted to memory, and numerical analysis not been employed; but since facts have been accurately observed, it has been ascertained that typhoid fever is a distinct affection, confined to youth, and not a complication of other diseases. How the ancient doctrine of its being a complication of other diseases should have been supported by M. Double, excites my astonishment.

"As to normal anatomy, it was not at first necessary to apply reckoning to the deviations from it; but now, every surgeon knows the importance of being aware of the variations in the distribution of the arteries. And how can the knowledge of these aberrations be obtained without the aid of statistics? At first it was impossible to distinguish a heart which was hypertrophied, or merely dilated, from one in its healthy condition. But after Bizot had carefully examined the hearts of a great many individuals of different sexes and ages, who died with healthy hearts, he was enabled to ascertain its normal condition, and to give a healthy standard by which to judge of its aberrations. Thus the results derived from the numerical method in pathology and in normal and pathological anatomy, are not of imaginary, but of really practical value.

"I come now to therapeutics, and suppose that you have some doubt as to the efficacy of a particular remedy: how are you to proceed? Will you compare two cases in which the remedy has been employed, with two similar ones in which it has not? Surely not; for you know that the inference drawn from them would be of no general value. You would take as many cases as possible, of as similar a description as you could find, and would count how many recovered under one mode of treatment, and how many under another; in how short a time they did so; and if the cases were in all respects alike, except in the treatment, you would have some confidence in your conclusions; and if you were fortunate enough to have a sufficient number of facts from which to deduce any general law, it would lead to your employment in practice of the method which you had seen oftenest successful.

"The state of the question, then, is this: every one has recourse to counting, but some approximatively, and others exactly. How, then, can it be said that a general approximative, *i. e.* imaginary mode of reckoning, is preferable to an exact, *i. e.* a real one. The first, which is merely the impression retained by the memory, is quite uncertain; while the other, resting on actual facts, is sure, and deserving of confidence.

"As to the argument that it is very difficult to combine many similar facts, so as to draw from them conclusions applicable to particular ones, I have shewn that this difficulty is quite as great in the case of those who do not adopt numerical analysis, and that it is one of the circumstances which render it necessary. I may add, that the difficulty is greatly exaggerated by those who talk theoretically on the subject, because the laws discovered by the numerical method, in every department of medicine, are every day confirmed by observation.

"Those who argue against statistics talk a good deal of their study of medical literature; but what is the use of it if it cannot lead to any general views of treatment? or what is the use of writing, if we can only state particular cases, without drawing any general inferences, or making any advantageous use of the past?

"It must be admitted, as M. Double remarked, that the general didactic works which are in the hands of young medical men are of little use in practice; but this is attributable to the faultiness of the works themselves; and if you examine the works of D'Espine, or of Maunoir, where the numerical method has been employed, you will soon discover their superior excellence.

"It has been said that I refused to rest the argument on the case of typhoid fever, but I only remarked, that, without the aid of numerical analysis, it is impossible

to lay down any absolute mode of treatment; and when it was said that two patients having the same disease could not be treated in the same way, I merely referred to the case of intermittents, dysentery, and painters' colic, where the same treatment is almost universally successful.

"Again, it has been said that as facts are so variable, we must always be guided at the bed-side by indications. But these indications can only be understood by experience—that is, by the analysis of facts previously observed. It was from a perception of its usefulness, not from any wish to assimilate medicine to the other sciences, that I adopted the numerical method; and in fact, without it, I could have turned to no practical use the numerous facts which I had collected on the subject of phthisis.

"I wonder that our adversaries, who impugn the value of medical statistics, have not questioned the importance or truth of the results to which they have conducted; and, until they have done so, the advocates of the numerical method may fairly consider themselves in the right.

"I have had to prove the value of numerical analysis applied to medicine; I think that I have demonstrated by facts its indispensable necessity; and I end by remarking, that numerical analysis, which is of no use without numerous and well-observed facts, must, in its turn, have great influence in rendering perfect the observation of facts. For when we are at the trouble of analysing, to draw rigorous conclusions from facts, exactness is essential. This, I think, will be denied by no one.

"To conclude, if any thing has astonished me in these debates, it is to see the partizans of statistics accused of confining themselves to ciphers, and of reducing medicine to simple addition, when they have applied all their power of study and reflection to the details of facts."

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67. *Mortality of Illegitimate Children.*—It is stated in a recent work by the Abbé Gaillard, entitled "*Recherches administratives, statistiques et morales sur les enfants trouvés, les enfants naturels et les orphelins en France et dans pleusieurs autres pays de l' Europe*," that in 1789 the mortality in illegitimate children was 98 per cent. from birth to the age of four years; i. e. of 100 illegitimate children born at that period in Paris, 2 only lived to the age of four years!

MISCELLANEOUS.

68. *French Medical Literature.*—There were published in France in 1836, more than three hundred volumes, on the different branches of the medical sciences. These added to the pamphlets, memoirs, and other small publications form a total of more than a hundred and fifteeen thousand pages. Adding to these the journals and theses published during the year, and we have a total of a hundred and eighty thousand pages. This would give five hundred pages a day to be read by one who would peruse what is published in France alone on medical subjects. If to this be added what is published in Germany, Great Britain, and this country, it will be seen how impossible it would be to keep pace with the progress of our science without some plan of condensing, such as is adopted in the periscope of this Journal.

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69. *Cholera in London.*—We find it stated in the London Medical Gazette that considerable alarm was excited in London in the early part of last November, by the occurrence of some well marked cases of cholera on board the Dreadnaught, and in some other situations; but the disease has shown no decided tendency to assume an epidemic character. The editor of the Gazette adds, that this is nothing beyond what has been witnessed every autumn since the first irruption of the disease in England.

AMERICAN INTELLIGENCE.

Hepatic abscess communciating with abscess in right Lung—death—autopsy. By William Pepper, M. D., of Philadelphia.—Mr. W. æt. 23, had been subject to severe diarrhœa for eight weeks before he came under my notice. The diarrhœa, he stated, had been preceded by severe pain in the right hypochondriac region, and to relieve it he had been bled and blistered. He has never had bilious or intermittent fever; but had been much exposed previous to his attack, to the heat of the sun, whilst superintending a lime-kiln at Norristown.

Present condition.—October 25th, 1837. Frame large, emaciation moderate, complexion pallid, tongue clean and moist, intelligence imperfect, pulse 90 and feeble; has had from ten to fifteen feculent evacuations, without pain, in the course of twenty-four hours; appetite good; sleep tranquil; strength tolerable. Examination showed evident enlargement at the lower part of the right side of the chest; mensuration from the ensiform cartilage to the spine on the right side exceeded the left by three inches, and percussion over this region was dull, and the respiration inaudible. The margin of the liver was felt extending to within an inch and three-quarters of the ilium. He has no cough or any symptoms of disease of the lungs, skin not jaundiced, urine of natural colour. Calomel gr. ss., pulv. dover grs. iij., one powder every three hours; farinaceous diet. In this state he continued until the 28th, when his diarrhœa increased; pulse rose to 100, small and feeble; ordered ext. krameriæ and cretæ. ppt. āā grs. v. as a substitute for calomel, and pulv. dover; also a blister to be applied over the liver; diet solely rice and milk.

October 30th. Nearly same state; diarrhœa somewhat less; blister dressed with mercurial ointment.

November 1st. Complains of pain on slight pressure being made over the right side; evident increase of size in this part; indistinct fluctuation between the ninth and tenth ribs, has no chills or night sweats; injection of ʒj. tinct. opii at bed-time.

November 3d. Diarrhœa continues; discharges of feculent matter too frequent to count. Mist. cretæ ℥iij., tinct. opii, ʒj. ext. krameriæ ʒss., a tablespoonful every third hour; ointment discontinued.

4th. This morning early felt something rise in his throat, and immediately discharged about ℥vj. of brownish inodorous pus, striped with blood; pulse 110; tongue white; since discharge has felt easier; side sensibly lessened; ordered a flaxseed poultice to the part.

5th. Slight cough, and expectoration of a reddish-brown pus, mixed with bronchial mucus, amounting to ℥vj. in the twenty-four hours; respiration bronchial; voice resonant, and distinct crepitant rattle at the lower portion of the right lung; pulse 110 and more feeble. Morphiæ sulph. gr. i., muc. gum. acac. ℥iv., a tablespoonful every two hours; diet mutton broth and egg.

7th. In addition to the pneumonic symptoms, distinct pectoriloquy can be heard at the lower part of the right lung. Expectoration more copious and slightly offensive; surface hot; some thirst; pulse 120; same treatment.

8th. As an abscess was evidently pointing externally between the ninth and eleventh ribs, a puncture was made with the lancet, which gave exit to at least one pint of reddish inodorous pus. The liver immediately retired behind the ribs, and the patient felt relieved. Diet increased; pulse 120 and feeble; tongue dry; diar hœa increased; ordered tinct. krameriæ ʒiij., tinct. opii ʒi., aquæ cinnam. ℥iv., a tablespoonful every second hour; port wine occasionally.

9th. Expectorated about ℥vi. of pus, as before described; near one pint of pus has escaped from the wound; on coughing air is forced through the opening, and the cellular tissue from the ninth rib to axilla is emphysematous; amphoric resonance of voice with metallic tinkling heard behind the ninth and tenth ribs. Patient much exhausted by the discharges; diet, beef tea, and milk punch.

On the 10th, 11th, and 12th, he continued in nearly the same state, and under the same treatment, with occasional anodyne injection.

14th. Percussion over the liver tympanitic; great emaciation; pulse 120; tongue dry; sordes of teeth; copious perspiration; discharge from the opening near ℥x.; expectoration diminished; no pain; same treatment.

16th. The discharge from his side and lungs much smaller. Increased difficulty of breathing, small slough on sacrum; sulph. quiniæ gr. i. every hour. From this time he became rapidly worse, and expired at day-light of the 18th November.

Autopsy—Eight hours after death; present Drs. Wallace and Smith. The integuments and muscles were dissected from the ribs of the right side, and the latter sawn off at their angles exposed a large abscess between the liver and ribs. This abscess was limited above by adhesions between the diaphragm and the sixth rib, and below by adhesions between the peritoneum covering the liver and the margin of the false ribs. The cavity thus formed was eight inches long, six broad and three deep; a large portion of the right lobe of the liver was destroyed, and the ninth and tenth ribs were in a state of exfoliation; on the surface of the liver the abscess was limited by a cartilaginous membrane, in some parts a quarter of an inch thick; an incision made through this membrane opened into another spherical abscess about two inches in diameter, and filled with yellow healthy pus. About one half inch of the substance of the liver intervened between the false membranes with which the two cavities were lined. The last mentioned abscess was immediately above the gall bladder, and extended to within one-fourth of an inch of the ascending vena cava. The rest of the liver was in a state of fatty degeneration. The gall bladder was filled with healthy bile. A circular ulcerated opening, about one inch in diameter, perforated the diaphragm near its adhesion to the sixth rib, and communicated with a large abscess in the lower lobe of the right lung. The pulmonary abscess was not lined with a false membrane, and was of an irregular shape: a number of large bronchial tubes terminated in it, and it was evidently of recent date. The entire lower lobe of the right lung was hepatized, and adherent to the ribs and diaphragm. The middle and upper lobe of the right lung and the entire left lung were perfectly healthy. The mucous membrane of duodenum was slightly thickened. The lower part of the small intestine was softened and injected. A number of ulcers were found in the colon, and the mesenteric glands were somewhat enlarged; other viscera healthy.

Remarks.—This case I consider interesting from the fact of the urine, feces, and skin retaining their natural colour notwithstanding the vast disease of the liver. The tympanitic sound on percussion with metallic tinkling and amphoric resonance of voice (behind the ninth and tenth ribs,) were evidently heard below the diaphragm, and were, doubtless, owing to the free communication between the lung and hepatic abscess. In this respect I believe the case to be perfectly unique.

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Case of Laceration of Ileum from external injury. By Samuel Annan, M. D., of Baltimore.—A gentleman about to mount his horse, was struck on the right side of the hypogastric region by the hind foot of the animal thrown forwards and outwards to dislodge the flies. Severe pain and sickness of stomach immediately followed, with paleness and tendency to syncope. When I saw him

an hour or more afterwards, there was not the slightest appearance of injury on the surface of the abdomen; but he complained of great pain, increased on pressure, and evidently referrible to the contained viscera. The face was pale, and the countenance extremely anxious; pulse very small and frequent. He was bled, a blister applied, emollient enemata administered, and such further treatment adopted as the symptoms appeared to us to require. Death, however, took place sixteen hours after the reception of the injury. On examination the skin and muscles gave no evidence of having been struck, but there was a laceration of the ileum. An opening was made into this intestine about one-third of an inch in diameter, through which the contents of the bowels had escaped into the cavity of the peritoneum, and produced intense inflammation, extending over nearly the whole of the viscera.

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Case of Monstrosity. By THOMAS CURRELL, M. D., of Hilton Head, S. C.—In No. XXXVII. of this Journal, a case of monstrosity is related, in which the viscera of the abdomen were covered by a thin membrane only, which was ruptured previously to the birth of the child. The following case, which closely resembles the one just referred to, will probably be sufficiently interesting for publication.

The subject of it was a male (negro) child, whom I was requested to examine, February 15, 1836. It was somewhat less than the ordinary size; countenance natural; respiration somewhat accelerated; deglutition good; nursed well. Superior and inferior extremities normal; so also were the head and thorax. The abdomen, from the ensiform cartilage to the symphisis pubis, and from the linea semilunaris on each side, was entirely unprotected, except by a very thin membrane, which was so perfectly transparent that the convolutions of the intestines could be distinctly seen. The intestines presented a dark-red appearance, apparently from an injected state of their blood-vessels. In the hypochondriac region the liver could be distinctly seen; it was very much enlarged, and of a dark colour. The umbilical cord was perfectly natural, and passed out of the abdomen at the usual place. The contents of the abdomen thus protected, protruded very much anteriorly.

I directed ol. ricin. ʒj. to be given to remove the meconium, and a swathe to be passed around the body to support the contents of the abdomen.

I saw this child again on the 17th inst. Respiration and circulation were then greatly accelerated; deglutition unimpaired; continued to be nursed; medicine had procured several evacuations. This child died the next morning.

Autopsy.—The membrane already described being removed, the intestines presented unequivocal signs of inflammation. They were distended by flatus, relative position natural; liver very much enlarged and engorged; bladder empty. I examined carefully all the other organs of the abdomen and those of the thorax, but discovered nothing preternatural in their structure or relative situation.

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Case of retention of Dead Fœtus in Utero. By JOHN ANDREWS, M. D., of Steubenville, Ohio.—The following case of retention of a dead fœtus in utero came under my observation in the early part of my practice, and I give it to you as inserted in my case book at the time.

Aug. 3, 1829. I was requested to visit Mrs. Fisher on account of a strange appearance. She was found quite easy, but stated that she had had severe bearing pains through last night; that she had been subject to "attacks" of this kind often within the last year; that this morning she had been placed over a vapour bath, with the view of producing a discharge, which it generally did, of a black fluid, more than natural, (comparing it, as I suppose, with the usual quantity of her menstrual discharge,) which always afforded her relief. After getting into bed she felt a few severe pains, by which a large 'mass of flesh' was discharged, which I was requested to examine. I found it about six inches

in length, two and a half in breadth, and completely flattened, as if it had been subject to continued and considerable pressure. It had the appearance of a whitened, or blanched, fibrous tissue, and was perfectly free from putrefaction. I was at first doubting what it was, but soon detected small cranial bones, then the extremities, &c. of a fœtus, all enveloped in the membranes. The placenta was attached, and was a little bloody on a part of its surface.

The patient stated that she had borne several children, but none living for the last six years, during which time she had had two or three abortions. That in February, 1828, she was satisfied that she was again pregnant; that the womb enlarged so as to be felt above the pubis; that it then ceased to enlarge, and continued stationary; that about this time she had an attack of flooding; after which she continued pretty well until the ensuing fall, and at about the expiration of nine months, according to her reckoning, labour pains came on and continued for some time, but *left her undelivered;* that in a few days the breasts enlarged, and milk was secreted freely, but soon disappeared. From that time to the present—*about eighteen months from her first conviction of pregnancy*, or at the expiration of a *second* term—she has laboured under irregular efforts at menstruation, (as was supposed,) always followed by some discharge, which was often copious, black, and unnatural. But she had given up all concern about her situation, and was now much surprised at this occurrence. I may remark, that I have seen her often since, and that her conviction is unmoved and immoveable that she carried the fœtus to the end of a second term of pregnancy. She has had no children since the occurrence took place, nor has she been troubled with the attacks of painful uterine action.

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Cephalic bellows-sound, or cerebral murmur.—In our number for November, 1833, p. 289, et seq., will be found the announcement of a discovery, by Dr. John D. Fisher, of Boston, of a new auscultic phenomenon observed in the head, which he termed the cephalic bellows-sound. The paper containing an account of this discovery was first published in the Medical Magazine for September, 1833, and was read before the Boston Society for Medical Improvement several weeks previously. This paper has been noticed in most of the medical journals; among others the *Archives Générales*, (Jan. 1834,) *Journal Hebdom. des Prog.*, (t. I. No. 4,) the *Dublin Journal* for May, 1834; and in a subsequent number of this last journal, Dr. Percival Hunt published an account of a case in which he detected the cephalic bellows-sound, and alluded in a particular manner to Dr. Fisher's discovery. It is mentioned by Raciborski in his "*Nouveau Manuel complet d'Auscultation*, &c., (of which a translation has been published in London,) and is also referred to in the review of that work in the British and Foreign Medical Review, (Vol. I. p. 485.)

The discovery of Dr. Fisher has thus had the most extensive publicity; and it seems not a little extraordinary that this same auscultic phenomenon should be now announced by another as a new discovery. Yet such is the fact. Dr. James Richard Smyth, in a communication dated July 31, 1837, and published in the *London Medical Gazette* for 19th of August, 1837, relates three cases of chronic affections of the brain, in which he states that he has observed a "new auscultic phenomenon," which he terms "cerebral murmur." This and the cephalic bellows-sound of Dr. Fisher, described *four years ago*, are identical; and although the claim to originality must be awarded to the latter, the observations of Dr. Smyth are interesting, as confirmatory of the discovery, and as extending our limited knowledge of this interesting auscultic phenomenon. We shall therefore quote the description of it, as given by Dr. Smyth.

"*On applying the ear to any of these situations, and also over the parietal bones, a brief, rather soft, rushing sound, synchronous with the pulse, is distinctly audible. Over the anterior fontanel and parietal bones it is heard the loudest, and it gradually*

becomes fainter as the examination recedes over the sagittal suture, posterior fontanel, and occipital bone. To be somewhat more particular in the earliest description of this new auscultic phenomenon, it is *an abrupt, brief, rushing, arrested sound, in tone something between a bruit de soufflet and a bruit de rape; not soft enough for the former, nor hard enough for the latter. In its character of intensity it varies of course with the energy of the action of the heart and pulse. When the circulation is excited and vigorous, and the heart, unembarrassed by palpitation, beats steadily and strongly, the sound is most clearly audible.*"

Dr. Fisher writes us that since the publication of his paper, he has met with many cases of disease of the brain and its envelopes in which this sound was a prominent symptom. We hope in our next number to present an account of these cases, with the inferences which flow from them.

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Animal Electricity.—We have inserted in our original department an interesting case communicated by Prof. Mussey, of unusual developement of electricity in the human system. Since the sheet containing that article was sent to press, we have received the January number of the *American Journal of Science and Arts*, in which we find an account of the same case by Dr. Hosford, the physician of the patient. As this latter is much more complete in its details we transfer it to our pages.

"A lady of great respectability, during the evening of the 25th of January, 1837, the time when the aurora occurred, became suddenly and unconsciously charged with electricity, and she gave the first exhibition of this power in passing her hand over the face of her brother, when, to the astonishment of both, vivid electrical sparks passed to it from the end of each finger.

"The fact was immediately mentioned, but the company were so sceptical that each in succession required for conviction, both to see and feel the spark. On entering the room soon afterward, the combined testimony of the company was insufficient to convince me of the fact until a spark, three-fourths of an inch long, passed from the lady's knuckle to my nose, causing an involuntary recoil. This power continued with augmented force from the 25th of January to the last of February, when it began to decline, and became extinct by the middle of May.

"The quantity of electricity manifested during some days was much more than on others, and different hours were often marked by a like variableness; but it is believed, that under favourable circumstances, from the 25th of January to the first of the following April, there was no time when the lady was incapable of yielding electrical sparks.

"The most prominent circumstances which appeared to add to her electrical power, were an atmosphere of about 80° Fah., moderate exercise, tranquillity of mind, and social enjoyment; these, severally or combined, added to her productive power, while the reverse diminished it precisely in the same ratio. Of these, a high temperature evidently had the greatest effect, while the excitement diminished as the mercury sunk, and disappeared before it reached zero. The lady thinks fear alone would produce the same effect by its check on the vital action.

"We had no evidence that the barometrical condition of the atmosphere exerted any influence, and the result was precisely the same whether it were humid or arid.

"It is not strange that the lady suffered a severe mental perturbation from the visitation of a power so unexpected and undesired, in addition to the vexation arising from her involuntarily giving sparks to every conducting body that came within the sphere of her electrical influence; for whatever of the iron stove or its appurtenances, or the metallic utensils of her work box, such as needles, scissors, knife, pencil, &c. &c., she had occasion to lay her hands upon, first received a spark, producing a consequent twinge at the point of contact.

"The imperfection of her insulator is to be regretted, as it was only the common Turkey carpet of her parlour, and it could sustain an electrical intensity only equal to giving sparks one and a half inch long; these were, however, amply sufficient to satisfy the most sceptical observer, of the existence in or about her system, of an active power that furnished an uninterrupted flow of the electrical

fluid, of the amount of which, perhaps, the reader may obtain a very definite idea by reflecting upon the following experiments. When her finger was brought within one-sixteenth of an inch of a metallic body, a spark that was heard, seen, and felt, passed every second. When she was seated with her feet on the stove-hearth (of iron) engaged with her books, with no motion but that of breathing and the turning of leaves, then three or more sparks per minute would pass to the stove, notwithstanding the insulation of her shoes and silk hosiery. Indeed, her easy chair was no protection from these inconveniences, for this subtle agent would often find its way through the stuffing and covering of its arms to its steel frame work. In a few moments she could charge other persons insulated like herself, thus enabling the first individual to pass it on to a second, and the second to a third.

"When most favourably circumstanced, four sparks per minute, of one inch and a half, would pass from the end of her finger to a brass ball on the stove; these were quite brilliant, distinctly seen and heard in any part of a large room, and sharply felt when they passed to another person. In order further to test the strength of this measure, it was passed to the balls by four persons forming a line; this, however, evidently diminished its intensity, yet the spark was bright.

"The foregoing experiments, and others of a similar kind, were indefinitely repeated, we safely say hundreds of times, and to those who witnessed the exhibitions they were perfectly satisfactory, as much so as if they had been produced by an electrical machine and the electricity accumulated in a battery.

"The lady had no internal evidence of this faculty, a faculty sui generis; it was manifest to her only in the phenomena of its leaving her by sparks, and its dissipation was imperceptible, while walking her room or seated in a common chair, even after the intensity had previously arrived at the point, of affording one and a half inch sparks.

"Neither the lady's hair or silk, so far as was noticed, was ever in a state of divergence; but without doubt this was owing to her dress being thick and heavy, and to her hair having been laid smooth at her toilet and firmly fixed before she appeared upon her insulator.

"As this case advanced, and supposing the electricity to have resulted from the friction of her silk, I directed (after a few days) an entire change of my patient's apparel, believing that the substitution of one of cotton, flannel, &c. would relieve her from her electrical inconveniences, and at the same time a sister, then staying with her, by my request, assumed her dress or a precisely similar one; but in both instances the experiment was an entire failure, for it neither abated the intensity of the electrical excitement in the former instance, or produced it in the latter.

"My next conjecture was, that the electricity resulted from the friction of her flannels on the surface, but this suggestion was soon destroyed when at my next visit I found my patient, although in a free perspiration, still highly charged with the electrical excitement. And now if it is difficult to believe that this is a product of the animal system, it is hoped that the sceptics will tell us from whence it came.

"In addition to the ordinary appurtenances of a parlour, it may be proper to add, that the lady's apartment contained a beautiful cabinet of shells, minerals, and foreign curiosities.

"This lady is the wife of a very respectable gentleman of this place; she is aged about thirty, of a delicate constitution, nervous temperament, sedentary habits, usually engaged with her books or needle-work, and generally enjoying a fine flow of spirits.

"She has, however, never been in sound health, but has seldom been confined to her bed by sickness even for a day.

"During the past two years she has suffered several attacks of acute rheumatism, of only a few days' continuance, but during the autumn, and the part of winter preceding her electrical developement, she suffered much from unseated neuralgia in the various parts of her system, and was particularly affected in the cutis vera, in isolated patches; the sensation produced being precisely like that caused by the application of water heated to the point a little short of producing vesication; in no instance, however, did it produce an apparent hyperæmia, but about the last of December a retrocession took place of this peculiar irritation, to

the mucous membranes of the fauces, œsophagus, and stomach, there producing a very apparent hyperæmia, and attended, during the exacerbations, with burning sensations that were torturing indeed; and it was for the relief of these symptoms that medical means were used, but it was found no easy matter to overcome this train of morbid action.

"It was nearly immaterial what medicines were used; no permanent relief was obtained, and no advantage resulted from the use of the alkalies, or their varied combinations. In a few instances a dose of the acetate of morphine was given to secure a night's rest, but she seldom made use of an anodyne.

"The effervescing soda draught being very acceptable was freely given—from which, in addition to a rigid system of dietetics, the influence of the opening spring, and the vis medicatrix naturæ, relief came of her electrical vexations, of most of her neuralgia, and other corporeal infirmities, and to this time, a much better state of health has been enjoyed than for many years."

The developement of electricity in the human system to the degree in which it occurred in the above case is certainly rare, though perhaps not quite unprecedented, as seems supposed, and in a less extent is far from rare. The Editor of this Journal has often seen, in dry, frosty weather, a spark of nearly half an inch pass from a bar of iron held in his hand, to a stove, and has been sensible of a smart shock on his hands being placed near the latter body. Some notice of these observations was communicated to the American Philosophical Society, four or five years since.

Professor Saussure and M. Jalabert, when travelling over one of the high Alps, were caught amongst thunder clouds; and, to their utter astonishment, found their bodies so full of electrical fire, that spontaneous flashes darted from their fingers with a crackling noise, and with the same kind of sensation as when strongly electrified by art. (See *Mém. de l'Acad. des Sc.*)

P. Brydone, Esq., mentions a Swiss lady whose body became electric, emitting sparks with a disagreeable sensation, and an extreme degree of nervous sensibility; but he does not give the details of the case. (*A Tour through Sicily and Malta.*) This same gentleman charged the body of a young lady with electricity, by causing her to stand on a cake of bees-wax, and to comb her sister's hair. Soon after she began to comb, the young lady on the wax was greatly astonished to find her whole body electrified; darting out sparks against every object that approached. He collected from the hair sufficient electricity in a Leyden jar, to give smart shocks to all the company. (*Philosophical Transactions*, Vol. LXIII. p. 163. London: 1773.)

Every one has observed in frosty weather, on taking off woollen or silk garments in the dark, a profusion of sparks and heard a crackling sound.

We will only further remark, that from observing this fact, that we have induced many of our rheumatic patients to wear silk inner garments, and that they have derived much benefit from the practice. The subject seems worthy of more particular attention, and we hope the hints we have thrown out may induce some one to prosecute the inquiry.

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Observations on the operation of Lithotomy; illustrated by cases from the practice of Professor B. W. Dudley.—This is the title of an interesting paper, by Dr. James M. Bush, in a recent number of the Transylvania Journal of Medicine. In a former number of this Journal (May, 1837, p. 163), we noticed the extraordinary success of Professor Dudley, in the operation of Lithotomy, and expressed regret that the operator, in the account he had published of his operations, had not minutely detailed the steps of his operative method. The principal object of Dr. Bush appears to furnish some of those details.

Dr. Bush ascribes the brilliant triumph of Prof. Dudley to the thorough preparation to which he subjects his patient:—

"Whether the deranged state of the stomach, in the patients, who come to Lexington for surgical operations," says Dr. D., "be the result of *irritation* or

any other morbid action, (we have not seen a case of inflammation of the organ,) Professor D. has secured his unparalleled success chiefly by the liberal use of emetic medicines. To see the paramount importance he attaches to a perfect preparation of the general system, of all his patients, who are to submit to the knife, is to witness his seemingly tedious course, under such circumstances. While we have known a patient arrive on one day, with cataract, or a tumour, or hydrocele, or stone in the bladder, or any disease small or great, and put upon the table the next day for operation; we have seen another remain several months, undergoing treatment all that time, to change morbid actions of the digestive apparatus to healthy."

Professor Dudley "condemns most earnestly the use of the lancet, as a preparatory mean for the performance of operations; a practice that is reprobated now, we believe, universally, by the most intelligent surgeons of every country."

Professor Dudley does not consider ulceration of the bladder as forbidding the operation, provided, by proper treatment,

"The digestive organs are restored to their natural actions, the agonizing paroxysms of pain retire, the discharges of blood and muco-purulent matter subside, and clear inoffensive urine appears in more copious and natural discharges."

Under such circumstances he has successfully operated.

The following is the course of treatment pursued by Prof. D., as detailed by his friend:—

"When a patient applies to Professor D. with the ordinary symptoms of stone; to ascertain its existence the first step of course is to explore the bladder with a metallic sound. This simple but indispensable operation, however, he never performs, in any case, for several hours after the arrival of the patient; and not even then, if there be pain in the organ or the slightest fever. For it is considered highly detrimental to the sufferer, to disturb the constitution while thus deranged, even with an instrument usually so harmless. Should the general condition of the patient's body not otherwise forbid, the day after his arrival, he is sounded, having taken a general warm-bath the evening previous. But if he be suffering with paroxysms of the stone, and his blood-vessels exhibiting febrile action, with a deranged state of the alimentary tube, more energetic treatment is required before the instrument is passed into the bladder. Nauseating potions of ipecacuanha or tartar are exhibited, and should these fail to reduce the pulse and restore cutaneous action, or a proper condition of the bowels, aided by the bath, an emetic, or cathartic, or both are then superadded, with light and abstemious living. By these means two objects are effected. The first, is a prevention of any irritating results from the examination of the bladder; the other is that so much is gained in the preparatory management of the general system. Until he is completely satisfied that all the organs are in the healthy performance of their various functions, he will not operate. When, however, it is believed that the patient is ready, having been once or more times sounded, he is placed on the table and tied; immediately the staff, being oiled, is introduced into the bladder, and left resting upon the stone; when the assistant grasps it firmly, to maintain it in the bladder, at the same time holding it perfectly perpendicular to the table, carefully avoiding any inclination of it to the right or left. The convexity of the instrument being distinctly felt in the mesial line of the perineum, the operator, seated in a convenient chair, with his instruments spread on his right, proceeds to the operation. While the left hand controls the scrotum and perineum, the right makes an incision, with a middle size convex-edge scalpel, beginning a little below the root of the scrotum, and terminating an inch, more or less, behind the verge of the anus, in a straight line, through a point midway between the verge of the anus and the inner edge of the left tuber ischii. This cut divides skin, subcutaneous tissues, and perineal fascia. The second stroke of the knife is not so extensive, it divides only the posterior fibres of the accellerator urinæ, and transverse perinei muscles. Always at this stage of the operation, if the perineum be remarkably concave, presenting an inclined plane, or if the arch of the pubis be very much contracted, Professor D. introduces the left middle-finger into the rectum, and draws off the bowel to the right. The fore-finger then placed in the wound conducts the scalpel through the membraneous part of the urethra into the

groove of the staff, cutting from the rectum towards the bulb. The scalpel is now laid aside and the gorget is taken up, the beautiful instrument of Mr. Cline; with its cutting edge toward the pubic arch; its beak is made to engage the groove of the staff, while the assistant resigns the latter to the surgeon's left hand, who for an instant playing the two instruments against each other, lateralizes the former, turning its cutting edge to the left, poises it for a moment, perfectly horizontal, before he plunges through the prostate into the bladder. At the same moment the gorget is passed with the right, the left hand depresses the handle of the staff; the bladder being opened, the staff is withdrawn, and the surgeon's forefinger of the left hand, directed by the gorget, is passed into the bladder, and the instrument withdrawn; the wound in the neck is dilated, forceps introduced, the calculus seized, and by steady, firm, and dilatory movements, from below upwards, and from side to side, the operation is completed by the extraction of the stone. The bladder is now cautiously explored with the scoop, and if found clear is filled with warm water from a syringe; the patient is untied, turned to his left side and thus put to bed, and is required to maintain the position for from two to four days. We have seen Professor D., in making this operation, release his patient in forty seconds from the first incision, while upon other occasions, twenty minutes were consumed before the extraction of an enormous calculus could be safely effected. He makes it a principle never to operate in any case against time, but always firm, deliberate and dexterous, he goes through what is before him with a rapidity compatible with circumstances and the safety of his patient. In the operation of lithotomy especially, his incisions are made with the greatest expertness and brilliancy; and notwithstanding we have repeatedly assisted him, we have not realized the moment when the gorget was passed, the staff withdrawn, and the finger thrust into the bladder; these three different points of the operation, always seem to be the work of an instant.

"In all his operations, he has used but two sizes of the gorget, the smaller seven-tenths, the larger eight-tenths of an inch broad in the blade. With the latter instrument, he has made an incision through which was safely extracted a calculus, three and a half inches in its long diameter, two and a half in the short, and eleven in circumference.

"It is evident that the larger size of the two is not wide enough to divide completely the prostate laterally, in the adult, or even at any age from twelve years to maturity; while with the smaller gorget, the prostate of the child from three to twelve is entirely safe from the invasion of its capsule. Certainly the opening made into the bladder, by either of the two instruments, is often very disproportionate to the size of the stone, still in one hundred and forty-three cases, in which those identical gorgets have been used, calculi varying from the size of a pea to that of the magnitude just cited above, have been extracted, with complete success and safety to the bladder, in all cases; and in but four did the subject die before he had time to enjoy the happiness of a cure. Yet in those four cases, which failed to realize the benefits of the knife, in consequence of the supervention, or aggravation, of other diseases, beyond the control of remedies, the bladder healed before death, or they passed the usual period of closing.

"Some surgeons when they have cut into the bladder, and ascertained that the stone is very disproportionate to the extent of the incision, prefer using cutting instruments a second time, with the view of extending the cut in the prostate and neck of the bladder. This practice our teacher has never adopted; but on the contrary always condemns. He contends, it is more philosophic surgery, in such cases, to extract the stone by increased tractive force, risking even a certain degree of laceration. No surgeon estimates more highly than he the advantages of a clean, smooth incision; but his extensive experience, in the operation of lithotomy, has entirely satisfied him, that the danger so generally ascribed to violence done the deeper tissues, in laceration, is not at all comparable with the beneficial consequences of such practice. Indeed the results of his mode of operating, under circumstances of a large calculus, induce him to inculcate the principle, that it is better, safer to extract by force, according to the size of the stone, than to resort a second time to the knife. In every instance, where he was required to remove a stone, which he commanded with forceps in the bladder, he has uniformly extracted by gradual dilatory and tractive force, without in a single case dragging away any of the soft parts.

"Every surgeon understands the great facility with which a calculus may be taken from the female bladder, so dilatable are the parts concerned in the operation. Unless the accretion be of unusual magnitude, Professor D. does not in the female use any dilating means previous to the moment of commencing the operation. After the patient is thoroughly prepared, and it is ascertained that the calculus is moderate in size, he proceeds directly to the operation. The same position is required as in lithotomy. With a graduated supply of forceps, he first introduces the smallest size, and gently expands the blades, in various directions, until the urethra and neck of the organ will admit the next size instrument; so on until with forceps of a proper kind, he can grasp and remove the calculous body. We have witnessed this operation, made upon a little girl six years of age, completed in forty minutes by the removal of a stone of the size of a pigeon's egg, and the pain did not seem to equal that caused by the extraction of a similar size body in lithotomy. This patient was perfectly well in five days after the operation, without loss of the powers of sphincter vesicæ. If the urethra and neck of the female bladder is so extremely relaxable, under the influence of instruments, without the aid of incision, why not expect to find the same accommodation in parts similar in the male, with the addition, to be sure, of the prostate body; a piece of anatomy, that Nature seems to have constructed with a peculiar fitness to facilitate extraction, doing away the necessity of dangerous encroachment with the knife, beyond the point of its fibrous envelope. The prostate gland appears not only to possess the property of ready and innocent laceration, splitting of its tissue, but also of extensive dilatation; and indeed it would appear that its strong capsule was also accommodating in a relaxing character.

"The operation completed, the patient is put to bed without the slightest dressings of any kind, but required to remain on the left side, until suppuration is established. He is not disturbed, even with sponge and warm water until twenty-four or thirty-six hours after the operation. From his long experience Professor D. does not fear infiltration of urine; nor has he any reasons to adopt means, such as catheter and sponge, or any material for the purpose of plugging the wound, since such a result never has followed his operations. Infiltration unquestionably does occur in many cases, and sometimes terminates in sloughing or mortification of the parts involved, and even in the death of the patient. But we do not believe that either of those undesirable effects do follow, (unless in very rare cases,) as a mere result of the operation. We should rather ascribe such a state of things, nine times in ten, to the ill condition of the general system previous to and at the time of the operation. Under such circumstances serious wounds of any description, are, most assuredly, far less manageable than in the opposite state. Then when the perineum, the urethra, prostate body and neck of the bladder have suffered a solution of continuity, when morbid actions are existing in the economy, nature too often must fail in her restorative attempts, while healthy progressive inflammation cannot develope itself sufficiently to erect barriers to the diffusion of urine; adhesive lymph is not thrown out in sufficient abundance along the incised parts, thus to restrain the limits of the urinary discharges.

"Professor D. has operated one hundred and fifty-three times; of this number, ten were females, six Africans, the remainder adults, youths and children. One hundred and twenty-two have been attended in the same apartments, and nursed by the same individual, Robert Beatty. Six were operated upon out of the city, and twenty-five at different houses in Lexington, private and public."

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Case of Triplets and of Locked Heads.—"A case of this kind occurred in the practice of Dr. Joseph A. Eve, of Augusta, on the 24th of September last.

"The woman was a delicate negress, aged about 35 or 40 years. Her health had been bad during the whole period of gestation, and particularly about the time of parturition.

"The first birth was very easy and rapid; the child having passed, before the doctor's arrival. He found the woman on her knees on the floor, leaning upon a chair, and the child suspended by the cord. As soon as he had made the ligature on and cut the cord, she was put to bed, and he found upon examination, the feet of another child presenting. The labour progressed with the second child in this

presentation until the body had passed as far as the armpits, when, in consequence of the pains becoming weak, and the fear of strangulation of the cord, the ergot was administered, with the effect of increasing the force of the pains. The next phenomenon worthy of remark was the indication of undue pressure on the brain of the second child, by convulsive contractions of its legs. At the same time the woman complained of severe pain and numbness in her right leg—the same side at which the head of the upper child presented. A farther examination was then instituted to discover the cause of compression, and of the arrest; for the pelvis was unusually large, and the child rather small, though not much below the average size. On this examination the doctor discovered the head of a third child below the superior strait, whilst the head of the second, whose body was delivered, was still above *the same strait*, constituting a case of locked heads. His first attempt was to dislodge the head of the third child; but this was soon found impracticable; for it was immoveably fixed below the superior strait. Not approving the plan adopted by some, of delivering the upper child by the forceps, before delivering the head of the lower, he determined to await the delivery of both together, as long as he might think it safe to the mother, and if necessary, ultimately to decapitate the lower child, press the head up from the superior strait, and thus allow the upper one to pass, or assist it with forceps, as circumstances might demand. Whilst awaiting the issue of this plan, he requested a consultation; but before the arrival of another physician, and within a little more than an hour after the discovery of the true nature of the difficulty, both heads passed. The superior child made some spasmodic movements after birth, but could not be resuscitated. Both heads were very much indented by the pressure of the other.

"Except the injury inflicted by the accident, the children were all well formed, and very little below ordinary size. Two of them were boys. The mother passed her accouchement as well as could be expected under the circumstance of her previous wretched health.

"Many cases of difficulty and perplexity in child-bearing arise from the small dimensions of the pelvis; but this was one which may be fairly attributed to too large a pelvis; for had this been of ordinary capacity, the head of the third child could not, with the good developements of both, have engaged the superior strait, with the neck of the previous child engaged in it, and the head at or near the superior plane."—*Southern Med. and Surg. Journ.*, Oct., 1837.

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On the use and abuse of the Pessary.—This is the title of an article by Dr. J. T. SHARPLESS, of this city, published in Dr. Bell's *Eclectic Journal of Medicine*, for January, 1838. We do not recollect in our whole editorial career, and it has not been a short one, to have met with a more exceptionable paper; or one in relation to which we have felt so much embarrassment in expressing our sentiments. Our limits will not permit us at present, to enter into a particular examination of this paper; and were we to speak of it in the terms we conceive it merits, without sustaining our opinions by extracts, we should probably be accused of harshness; and yet entertaining the sentiments we do as to its evil tendency, we should be wanting in our duty were we to shrink from the exercise of whatever influence we may possess to counteract those effects.

Without pretending to the experience in uterine diseases claimed by the author, which, considering that he is an unmarried man and unconnected with any public institution for those complaints, would appear from his paper, to have been very remarkably extensive; and giving to this advantage on his part all due weight, we cannot help questioning the soundness of many of his doctrines. Not only are they in direct variance with our own limited observations, but with those of every practitioner of experience with whom we have conversed.

Restricted as our limits are in our present notice, Dr. Sharpless's practice in one affection appears to us to be so monstrous, that we must particularize it:—

"In the neuralgic vagina previously mentioned," he observes, "the sensibility is often so excessive, that an examination to any extent is entirely precluded, and yet

there are no evidence of inflammation or change of structure. In these cases, depletory treatment does no good, and although perfect rest and sedative applications partially benefit, the sensitiveness of the part will remain for months. *These cases I treat* on the principle long practised in the same condition of the rectum and urethra, *by the bougie. These I have made of gum elastic of various sizes,* and the patient employs them herself, *commencing* with the *largest that she can introduce* without much suffering. This is retained until all pain ceases, and when a certain size can be used without *any* inconvenience, *the diameter is increased.* They should never be introduced unless the patient is recumbent, and great care should be taken to avoid striking the womb, as inflammation might thereby ensue. I occasionally use some sedative ointment upon them (as opium or belladonna) to assist in the relief. *In all cases they should be covered by some oily or mucilaginous substance.* This treatment is almost a specific for that distressing sensibility that has been found heretofore so difficult to cure, a few days being often sufficient to remove tenderness of several months' duration."

We are loath to express this practice, or at all events that to which it inevitably in many cases would tend, in plain language; and if we could have had any doubts of this tendency, the verbal illustrations given by the Author at the College of Physicians when the paper was read, would have removed them. Those who desire an exposition of the consequences of the practice alluded to, are referred to Tissot's work on *Onanism.*

It is with unaffected pain, and solely from a strong sense of duty, that we have spoken as we have done of the above paper; but so evil do we conceive its tendencies to be, that we even hold the Editor of the Journal who has given it currency, and to a certain extent his sanction, by inserting it without comment, to be censurable.

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Professor Warren's work on Tumours.—We are extremely gratified to find that this valuable work of our eminent countryman is duly appreciated abroad. It is noticed in the *Edinburgh Medical and Surgical Journal* (Oct. 1837), high critical authority, in the following complimentary terms:—

"The present work possesses substantial merit, which cannot fail to recommend it to the serious and attentive study of all those who are best acquainted with the practical difficulties of this most difficult, variable and unsettled department of surgery. The history of the different operations given by Dr. Warren is alone sufficient to stamp a high value on the work; and when the surgeon who has similar cases to treat, and tumours equally difficult to remove, learns from Dr. Warren, the difficulties against which he has to contend, and the manner in which he encountered and overcame them, he will feel that he has derived from the instructions of that author much more beneficial aid and information than any that could be conveyed by mere atttention to methodical arrangement."

Much space is devoted to an analysis of the work in the October number of the *Medico-Chirurgical Review*, and the reviewer observes, "our ample extracts will evince our sense of the practical interest which attaches to the present work," and promises to return to it in the next number.

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The Medical Examiner.—This is the title of a Journal devoted to Medicine, Surgery, and the collateral sciences, edited by J. B. Biddle, M. D., and M. Clymer, M. D., of this city; the first number of which was issued on the 3d of January, 1838. The plan of this publication is that of the weekly Medical Gazettes of Paris, London, and other European cities. It is to be published every alternate Wednesday, on a super-royal sheet, at three dollars a year, *in advance.* Each number to contain sixteen octavo pages of double column. If the editors shall succeed in procuring accurate reports of the clinical lectures delivered at our public institutions, and of the cases treated in them, which is a prominent part of their plan, their Journal cannot fail to be a useful one; and we wish it every success.

College of Physicians and Surgeons of the Western district of the State of New York, in Fairfield, Herkimer County.—This College opens annually on the first Tuesday in October, and the Lectures are delivered as follows:—*On Chemistry and Pharmacy*, by JAMES HADLEY, M. D. *On Anatomy and Physiology*, by JAMES M'NAUGHTON, M. D. *On the Practice of Physic and the Diseases of Women and Children*, by JOHN DE LA MATER, M. D. *On Materia Medica and Medical Jurisprudence*, by T. ROMEYN BECK, M. D. *On Surgery and Midwifery*, by REUBEN D. MUSSEY, M. D.

The expenses for attending lectures are:—For Anatomy and Physiology, $12; Chemistry and Pharmacy, $12; Surgery and Midwifery, $12; Practice of Physic and Diseases of Women and Children, $10; Mat. Med. and Medical Jurisprudence, $10.

During the past session the number of medical students was 142.

At the commencement on the 31st January, 1837, the degree of M. D. was conferred on 34.

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Dartmouth College.—The number of students in this institution, as given in the annual catalogue, is 322, of which number 91 were *medical students*, and the remainder (231) undergraduates.

The Medical faculty consists of REUBEN D. MUSSEY, M. D., Prof. of Anatomy, Surgery, and Obstetrics; DANIEL OLIVER, M. D., Professor of Physiology, Medical Jurisprudence, Materia Medica, and of Intellectual Philosophy; JOHN DELAMATER, M. D., Prof. of Theory and Practice of Physic; and OLIVER P. HUBBARD, M. D., Prof. of Chemistry, &c.

"The annual course of Lectures begins one week after the College Commencement and continues fourteen weeks. Four Lectures daily; a part of the time five. Fees for the course, fifty dollars. Matriculating fee, two dollars. Library fee for those who take books, fifty cents. Surgical operations performed gratis before the Medical Class, during Lectures."

The requisites for graduation are the following:—

"Each candidate for the degree of M. D. must be twenty-one years of age, must possess a good moral character, an acquaintance with natural and experimental Philosophy, and a knowledge of the principles and construction of the Latin Language—must have studied medicine three full years, with some regular practitioner, must have attended two courses of public Lectures in all the branches of the profession, at a regularly organized Medical Institution, one of which courses shall have been attended at this Institution—must have passed a successful private examination before the Medical Faculty, and have read and defended in their presence an acceptable dissertation on some medical subject.

"Graduating expenses, eighteen dollars."

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University of the State of New York.—College of Physicians and Surgeons.—Some changes have been made in the Faculty of this school the past year; and a new and commodious building has been erected for its accommodation.

The present Faculty are as follows:—J. AUGUSTINE SMITH, M. D., Professor of Physiology; ALEXANDER H. STEVENS, M. D., Professor of Clinical Surgery, (to Lecture at the New York Hospital); JOSEPH MATHER SMITH, M. D., Professor of the Theory and Practice of Physic and Clinical Medicine; EDWARD DELAFIELD, M. D., Professor of Obstetrics and the Diseases of Women and Children; JOHN B. BECK, M. D., Professor of Materia Medica and Medical Jurisprudence; JOHN TORREY, M. D., Professor of Chemistry and Botany; JOHN R. RHINELANDER, M. D., Professor of Anatomy. (Lectures on General, Surgical and Pathological Anatomy); ALBAN G. SMITH, M. D., Professor of the Principles and Practice of Surgery; AMARIAH BRIGHAM, M. D., Lecturer on Special Anatomy.—Demonstrators: James Quackenbush, M. D.; J. B. Sweet, M. D.

"The Lectures commence on the first Monday of November of each year, and continue for four months.

"The expense of attending a complete course of Lectures by all the Professors, is 108 dollars.